

Economic Development and Cultural Change

THE UNIVERSITY OF CHICAGO

Research Center
in Economic Development and Cultural Change

E C O N O M I C D E V E L O P M E N T
A N D C U L T U R A L C H A N G E

A journal designed for exploratory discussion of the problems of economic and cultural change. Preliminary versions of research findings and research hypotheses are welcomed in the interest of provoking constructive and fruitful discussion.

R. Richard Wohl, Editor

Number 5 February 1953

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THIS PUBLICATION IS ONE OF THE ACTIVITIES OF THE
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ECONOMIC PLANNERS IN AFGHANISTAN

The purpose of this paper is to explore certain aspects of the mental metabolism which appear to have influenced recent government and business decisions in Afghanistan in the domain of economic planning. The literature discussing the trials of economic planning in the area is considerable, as is the general literature on the pitfalls of planning economic development. An attempt to relate attitudes and decisions of individuals and groups observed by the writer to the impersonal problems of planning might contribute to an understanding of the persistently recurring pitfalls in certain Middle East countries.

The focus of the paper is the author's experience with the Government of Afghanistan in preparing a blueprint for economic development for presentation to the US Government and in subsequent negotiations for a loan from the US Export-Import Bank from 1948 to 1950. In addition, the writer was able to learn of the dealings of two important American groups with the Afghans: (1) the American contractor who, operating in the country since 1946, probably has lived through one of the richest and most continuous partnerships with the Afghan Government thus far, and (2) the Export-Import Bank in Washington which has had two inspection teams in the country since it granted a loan in April 1950.

The problems of economic planning in any country are of course not neatly isolated from other social, political and economic problems. Most of the Afghan background material the author gathered in the course of advising the Afghans -- material from the mouths or files of the Afghan mission to the US or on the shelves of the Library of Congress. There is no need to include here what has been presented adequately in recent articles and books. Some of the political and social factors bearing upon the topic are covered as they become pertinent -- the way they were brought to the author's attention in 1948-1950.

I. Planning Dilemma

Perhaps the fundamental stimulus to planning economic development is the persistence of a miserable affliction: In the midst of abundant but idle resources, be they unreclaimed land, underutilized manpower or untouched sub-soil riches, masses of people live on a bare subsistence standard and have little if any voice in the shaping of the economic process of which they are part. Some basic causes are well known: dearth of capital, in local currency, stable purchasing power, and foreign exchange; a famine of trained personnel, government administrators, engineers, agronomists or teachers. Less known or less understood is the lack of complementary resources required to exploit water for irrigation and power, or minerals for processing and export, or raw cotton and oil crops for industry. Among these complementary resources are not only physical ones, but the almost complete absence of managerial talent or ability, by no means innate in climate, race or history, but nevertheless not there. Government officials and private business men must

have this so as to combine available resources in economical proportions and to time the intensity of their utilization so that economic activity "A" does not conflict with economic activity "B" and that the aggregate of economic activities "A" to "Z" does not overtax the narrow base of the national economy as a whole. Important among these latter are limitations on foreign exchange resources, human skills and local savings. The paramount function of this missing managerial activity (which for want of any better term we might label planning) is to enable the people of these countries to translate the potential economic wealth into concrete achievement and thus reverse the deteriorating trend.

People in positions of authority and influence in Middle East government and business are fully aware of this dilemma. Most of those involved in, or anxious to take a hand in, straightening the erratic course of official economic policy have recognized that economic emancipation is linked with a determination of priorities essential in an environment of limited natural, financial, and administrative resources; with stability and continuity of effort at the legislative and executive level where long-term investments are involved; with offering foreign technicians, financiers and contractors solid, realistic and wide enough administrative services without which harmonious and productive international cooperation can not work.

Here is the statement of the Minister of National Economy of June 4, 1949 defending his application for credit from the US Export-Import Bank:

> My Government believes that the projects submitted represent the closest approximation to a minimum and necessary program of public and private investment that could be designed. What convinces me of the soundness of the proposed projects, taken together is their economic interdependence.
>
> The textile mill project depends upon (a) increased cotton cultivation and (b) expanded electric energy and fuel supply and (c) improved and expanded transportation services. A switch of arable land to cotton and sugar makes necessary increased production of grains, fruit, and legumes in the Arghandab and Helmand Valleys. Cement and brick production are an economic asset to the irrigation and construction projects. Similarly, new sources of electric energy and coal are essential to the new textile, cement, and brick plants. Finally, increased production of fruits, cotton and meat for domestic consumption as well as for export, will intensify the ability of the Afghan economy to repay the hoped-for loan. Clearly, the proposed projects are largely complementary to each other so that the withdrawal of one makes the others suffer.

Lest this appear as an exaggerated expression of unrealistic needs put forward for bargaining purposes, it should be noted that the same man only two years earlier had just as impatiently urged shareholders and directors of the only commercial bank in Afghanistan, as well as traders and the "intelligentsia" at large, to stop profiteering in speculative enterprises and instead to enlarge the capital of the Bank so that productive investments could be increased. (1) [Fn.1 on p.325]

What then is behind the seeming paradox of awareness and incompetence? There has certainly been enough planning in the Middle East, enough honest attempts to arrest the disastrous waste of energy which is reflected in the number and volume of blueprints for national development programs and for individual projects on the one hand and the number of finished and half-finished structures on the other. Shortcomings of planning in the Middle East are of two types: There are what we may call inadequacies, misjudgments, if you wish, in the blueprinting stage which are, in many cases, due to misconceptions about the economics of mobilizing resources and, in other cases, about methods or procedures for economic development. And then there are probably many more inadequacies and really serious difficulties (serious, because costly) in the implementing stage of planning. Illustrating these two types of deficiencies is unfortunately an easy job, as far as the Middle East is concerned.

II. Blueprinting Mistakes

One of the most vexing issues in this area is the lack of real purchasing power which so restricts the market for an increased supply of industrial and agricultural products that it discourages both private and public investment from the start. Vexing, because even the most illiterate readily recognize the enormous technical opportunities which come with the replacement of primitive methods of production. Technically speaking, it is easy to convince observers of modern plants or farms how large is the physical productivity of one dollar invested in capital equipment compared with investment in real estate. And the observer almost inevitably takes this to mean that installation of more and better equipment anywhere will increase income. Any obstacles that might stand in the way are seen as physical barriers to movement of goods or high transportation costs.

This narrow and misleading approach was followed by Syria when it established a glass factory in Damascus and soon found that the market for its output was too small. A similar error was made by Turkey when it industrialized certain fringes of the economy, realizing much later that the returns are disappointing on a single investment project, or even a group of projects, which do not affect the purchasing power of the larger segments of the economy. Several avenues of escape have been tried. For years, Lebanon has pressed for preferential tariff systems or free trade areas in order to create adequate markets for large-scale industries. At Havana in 1947-48, during the fiery discussions about the commercial policy provisions of the Charter for an International Trade Organization, all Middle Eastern delegations lined up behind George Hakim to make such trading areas acceptable to the other major trading powers. And one can observe the imprint of this drive in the present text of Art. 44, of the ITO Charter.

This answer to the problem mistakes mobility within countries or between countries for wealth. If by legislation or government order trading areas, previously blocked from each other, could become one and pari passu rich enough to buy the products of new industry or mechanized agriculture, the problems would be solved.

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(1) Speech of Minister of National Economy, June 28-29, 1947, reprinted in Anees of same day.

Another answer to the problem, popular in the Middle East, has been to subsidize the new plants or branches of industrial or agricultural production in the vague hope that experience, training of workers and the like will eventually put them on a sound economic basis. This hope is only justified if the subsidy is tied to a simultaneous increase in productivity in other segments of the national economy. What is really needed is a wave of investments in a number of areas each of which promises greater physical productivity to the employed and the totality of which increases the market in an economic sense, i.e. creates larger purchasing power all around.

A synchronized advance on all fronts -- not only agricultural and industrial, but educational and financial as well -- is not easy to attain. It is ironic that some of the most crucial requisites for an underdeveloped nation's jump from the primitive to the modern, involving improved and expanded transportation facilities, sanitation and disease control, power supply, and so forth, demand investments which are large in relation to the goods or services they eventually hope to produce and distribute. They also necessitate long-term planning, with all the attendant complexities of proper coordination and financing over years of political uncertainty. It is not unnatural, therefore, that an underdeveloped economy tends to take the line of least resistance, advancing not on all fronts but project by project. This localized approach is frequently abetted by governments and institutions bent on confining to manageable areas the risks they are willing to assume.

In devising a program of action a government's most serious problem is to strike a balance between the evident need for a synchronized advance on several fronts and the more conservative pressure for attention to individual projects undertaken in sequence. The advantages and disadvantages of each approach must be weighed. An emphasis on sequence will tend to cloud broader, yet vital, issues -- the effect of a given project, for instance, on the social structure of the country and its general economic welfare. On the other hand, an underdeveloped economy faces practical limits in advancing on several fronts in a balanced and coordinated way. It is difficult to secure manpower, equipment, and planning ability exactly as the various projects require, unless much is imported. More important, perhaps, human errors, unavoidable when rapid advance is sought, are likely to have wider repercussions than in cases where single projects at a time are undertaken.

Regardless of how this dilemma is solved, the economic lesson for planners in the Middle East must be clear by now: A frontal attack by simultaneous or rapidly successive investments in a number of different industries will remedy the deficiency in purchasing power (provided transportation costs and other barriers to movement of goods are low enough to make economic exchange of goods between various segments of the economy possible) whereas even a substantial application of capital in an isolated project will be discouraging if not wasted. Only when enough people making diverse products are working with higher productivity due to higher capital per capita can a number of projects support each other.

Significantly, the Minister of Public Works who first introduced Afghan economic development plans to American financial institutions and his successor in that function, the Min-

ister of National Economy, when presenting their case, had not fallen victim to this fallacy. The above reference to the presentation made to the Export-Import Bank demonstrates that. And the first application for credit, in February 1949, requested foreign aid for five years for eight private projects, costing $49 million and eight public projects costing $69 million, each of them in different branches of the economy and in geographical regions of the country. In the opinion of an American Government official (an economist) who had studied these plans in May 1952 and discussed them with the former Minister of National Economy, then having resumed his position of President of the commercial bank in the country.

> The ... projects are fairly well planned out, both those for the near future as well as those for the long run. They have been sensibly chosen and are precisely those which seem to be called for at this stage in Afghan development.

But, as foreign aid became available only on one group of public projects, all centering upon the utilization of soil and water in a rather narrowly confined region of one valley, costing approximately $28 million, and as the private investment projects in new transportation, textile, cement, sugar, soap, and hydroelectric power were allowed to lag behind, all the dangers of pushing ahead with a relatively large investment in one isolated economic area alone began to hover over that project. These dangers appeared avoidable only if some of the other projects could have been aggressively pushed. But here a second danger loomed.

III. Implementation Errors

This is the danger of overinvestment, that is the undertaking of development activities which, though by themselves do not produce anything consumable for a certain period of time, nevertheless consume existing resources. Not only have the "investment" workers to be given tools and equipment and materials but they have to be fed and clad, perhaps more so than before when they were underemployed and shared the meager yield of their nomad or peasant families' farms. The additional resources required must be met either by complementary domestic savings or capital imports. Both sources of capital are not unlimited. Hence, an aggregate of development projects that meets the requirement of concurrent investment in several directions may be in excess of financial resources. Moreover. it may be in excess of the physical and managerial resources of personnel, available to the country. Allocation of materials, power, manpower, and funds, timing of deliveries, and fiscal management of a number of projects require administrative manpower which is extremely scarce.

Afghanistan is an illustration of this point, more directly of concern to us since the US Government is underwriting part of the cost of a five-year plan there.

Let us first take the experience of the American contractor in 1946-1948. The first contract, signed in 1946, called for projects costing about $16 million. They included, after only a perfunctory survey:

1. Diversion dam on the Helmand with 90 kms. of canal.
2. A 100 km. highway to the Pakistan border.
3. A 70 km. highway from the Helmand to Kandahar.
4. A 275 km. highway between Kabul and the Khyber Pass.
5. Reconstruction of four irrigation structures and dams.

Engineers and implements for preparatory work began to arrive in Afghanistan in June 1946. Within a very short period, it appeared that government plans were not sufficiently detailed to allow the contractor to begin construction immediately. Nevertheless, relying on a traditional policy of not passing judgment on the employers' requirements or quality of planning, the contractor established his supply and service organization so that work could start in May 1947. By June 1948, one-third of the job volume had been completed at a cost of $11 million, of which $4 million had been spent on equipment and on the construction of work camps. By December 1948, the contractor expected to spend an additional $5 million. At that time it was the contractor's considered opinion that because of the inflationary increase in prices the cost of the original projects would be about double the figure given them by the Government in 1946. As unforeseen delays in delivery of supply and equipment slowed down construction progress, the contractors' engineering and survey crews were appointed to prepare a large number of studies of additional projects including new highways, dams, cement and brick plants. Justifying this diffusion of efforts on many survey jobs and a few actual construction projects, the contractor wrote the Ministry of National Economy on February 11, 1949:

> It has been necessary to prepare studies on many projects in order for the Government to determine a sound program. In addition the eight original projects included in the original contract, there have been added 25 additional engineering studies and some other small construction work.

The construction work included a Kabul customs house, machine shops, a hospital, the royal mausoleum, and the King's apartments.

In spite of the failure of the work to reach the predetermined goal, the government had to incur the predetermined expense. While a portion of these expenditures were actually wasted in the light of subsequent developments, another portion reflected the high overhead costs for the construction actually carried out. Service and supply operations such as purchasing, forwarding, hiring personnel, cost-accounting, warehousing, repair and maintenance, required a certain minimum volume and minimum expense regardless of the number or size of the projects handled. It can be assumed that the government, when inviting the contractor to start work on the eight primary projects, was unaware of the high share of fixed costs it would have to pay, despite its decision to defer construction on several of the larger projects. Similarly, the contractor probably would have submitted considerably higher cost estimates for each project had he been able to anticipate the delay and the consequent small volume of feasible construction work. It is obvious that the contractor, as well as the government, had been tempted by the volume which the original five-year plan had held out to both. But neither the technical preparation nor the financial resources were available to support that volume.

The first indication that the planners in the Ministry of National Economy (who in 1949 were pushing the five-year plan with the 16 projects mentioned above as a minimum) had overreached themselves came when the Plan failed to be approved by the Cabinet and Parliament. As will be seen below, there were political and personal factors involved, but to the more conservative group an annual exchange burden of $16 million for a period of five years, to be followed by a new five-year investment program was beyond the country's capacity, even if all the controls over imports and consumption demanded by the Ministry of National Economy could have been enforced. In addition, the Government obtained only $21 million in foreign credit and not the $55 million it sought. Officials of the Export-Import Bank concurred in this appraisal of the country's financial resources when they reviewed the situation in 1952. Even after being cut down, the Plan still overtaxed available facilities.

The experience after 1949 was no different. As construction of basic irrigation installations approached completion, especially the Boghra canal which takes water off the diversion dam across the Helmand near Girishk, the Afghan Government was reminded of the assurances it had given:

> To insure proper administration of the Plan the Cabinet decided to create a Committee to be in charge of the supervision and execution of the Plan. The Committee will have full authority in all matters concerning the Plan and will be able to delegate part of its authority to subcommittees and individuals.
>
> The different departments of the Government ... which may have to cooperate in the execution of the Plan will receive directions from the Committee...(2)

On June 4, 1949, the Minister of National Economy added to this pledge the following:

> After the most careful consideration of all the factors involved I have come to the conclusion that my government, the business community and the foreign contractor and advisors together have the technical, organizational and financial means to go through with the projects as presented.

Not until April 1952 was a Commission set up to help carry out an important part of the Plan. Even if the Cabinet had been able to overcome some of the political and technical hurdles, it would not have been able to locate enough administrators to handle the Committee's job as originally envisaged.

A concrete illustration concerns a situation which will require serious commitments on either the Afghan or the American side in the near future: the settlement of the nomads in the Helmand Valley. In the above mentioned report on Afghanistan's Economic Development Plan the Government had declared:

> The resettlement plan will be put into operation when the irrigation projects ... are completed. The Government will undertake to build roads, schools, arrange for public health facilities, but will leave the work of building

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(2) Afghanistan's Economic Development Plan and Her Current Difficulties, February 1949, pp. 12-13.

houses, subsidiary water channels, to the settlers themselves. (3)

Furthermore, the government was to operate experimental farms near the settlements, to make available extension services, rent out machinery, and provide repair services at cost.

But no formal allocations or budgets were made in 1950 or 1951. Although the area required exceptionally careful staking out of the homesteads and preparing of the land, because of differences in soil quality and the abundance of third-class land, no official provision had been made for preparatory work. No technical service had been started when the first settlers began squatting along the new irrigation canal. Probably the Afghan government relied on the nomad's alleged hunger for sedantary farming and the farmer's self-help, just as the American contractor had relied on the government's help. The result was that neither the new contract with the American firm, nor the loan agreement with the American Government covered the cost of land development work. Not until 1951 did the Afghan Helmand Exploitation Department recommend that the American contractor be asked to undertake land development work.

New inadequacies developed when by 1951 over 4,000 acres had been developed and put under cultivation. This had been accomplished by machine operations in order to save time -- a gain in time which might have meant a gain in production and income for settlers, had plans for settlement reached the appropriate stage. Instead, a good portion of the newly prepared land was leased out to large land-owners. Furthermore, the use of water was not controlled. Unattended ditches and distribution laterals became flooded or filled with sand.

Soon typical settlement difficulties emerged. Afghan farmers had learned in thousands of years' experience that soil and crops differ radically in water needs. But with the need for allocating the newly available water between as many as eleven crops over a 12-month period, a new educational process was necessary. Many of the settlers had little acquaintance with irrigating more than one crop. By spring 1951, only incidental help had been rendered to the farmers on diversified irrigation cropping. It soon turned out that a careful classification of the soils was impossible because of inaccurate soil maps. Except for a United Nations soil classification expert, who early in 1950 had made a futile effort to impart his knowledge to qualified Afghan agriculturalists, no one outside the American contractors' staff had been brought officially in contact with the project. This may have been due in part to the fact that, when the promoter of the Helmand project had been removed from the forefront of the political scene, subordinates belonging to opposing political factions showed a natural tendency not to be caught supporting, or even acting in connection with, the former Minister's program. What opinions United Nations experts voiced privately were unfavorable. Questioning the agronomic justification of the whole project, they were dismayed over the lack of adequate preparation and the insufficient auxiliary services provided by the government. The neglect of some of these matters reminded some United Nations representatives of Great Britain's East-African ground-nut scheme. As a result, they refused to take responsibility for technical assistance in

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(3) Ibid., p. 232.

the Valley, lest the stigma of the scheme's failure smear other United Nations efforts.

The lack of understanding of soil management problems was further and glaringly revealed when farm sizes were determined by the government. The government assumed that a family of five could be supported on 12.5 acres of average land. According to the contractors' data, such a family needed at least 12 acres of Class I land and 25 acres of Class II land -- the latter being defined as "land that could not produce wheat, cotton or sugar beets without special treatment." To the surprise of all concerned, the large number of applicants for land induced the Government to reduce the average farm size for settlers to between 7 and 10 acres.

This picture, while leaving many gaps, leads one to believe that a number of the defects surrounding the scheme could have been explored, if not avoided, in advance, if the aid administered by the government to the area had been of a different size and of a different nature. The local personnel for handling the problems in the first settlement area consisted of not more than five government officials who had to devote their time to such a large number of miscellaneous tasks that only one trained senior agriculturalist and a few technicians could devote themselves full time to settlement. Up to that time, the American contractor had had no occasion to train personnel for technical irrigation and agricultural extension services.

There seems little doubt that the Afghans, who had received all technological and financial aid they thought necessary for the project, were unable to forecast the amount of human ingenuity needed to carry the organizational burden called for by the occupational and social adjustments in the settlement plans. None of the difficulties encountered could be considered insurmountable. But they required personnel and training which simply was not available in adequate quantities.

The sad result of all this was that by February 1951 the arrangement with the contractor, to build the canals and roads on the first 16,000 acres, had not even been signed although discussions had been going on for four months. By April 1952, only 8,000 acres had been "developed," that is furnished with laterals, distribution canals and farm ditches. But 15,000 applications for land were stuck in red tape between two Ministries. Only 125 settlers were on their land, 375 more waiting, just squatting while the land allocated to them was farmed by large lessee landowners, pending the disentanglement of the red tape. Sixty thousand more acres which could be irrigated at least during the spring season, are awaiting the outcome of contract negotiations. All this time, through the early summer of 1952, the Government was unable to find or decide on personnel capable of and willing to shoulder the administrative responsibility for land classification, contract work, settlement and cultivation.

Here clearly the administrative capacity of the Government was inadequate to accommodate the achievements of the construction phase. How far behind the Government's administrative resources were became evident from the number and scope of supplemental contracts signed with the American construction firm. In addition to the land development contract mentioned above,

the firm assumed responsibility for the purchase of farm machinery, highway maintenance, new stream gauging installations, aerial and economic surveys of the downstream reaches of the Helmand river, reconstruction and repair of canals and dikes, and above all, the operation and maintenance in operable condition of the newly built canal and water distribution system in the Valley, including the control of the water, and training of crews to handle these jobs in the future.

At the same time the contractor warned the Government of the cost entailed by inadequate planning and administration. As in all economic activities which require a large proportion of overhead, organization and capital equipment, unless the organization and equipment are kept in operation, at a high rate, an increasing proportion of cost will go to maintaining it in idleness. The only way to protect the Afghans against such waste was to recommend new construction projects (including land development work) or to cut back personnel, not easily replaced. The vicious circle in this pressure for more work is all too clear: construction projects require economic feasibility studies, cost estimates, and engineering work which must be sufficiently ahead of the construction crew's progress. Without surveys none of these prerequisites can be met. Since the Afghans had no staff to make these surveys and had to call on the contractor, though belatedly, to make them it is clear that before 1952 is out the Government will have to absorb some of the cost of idleness or of shutting down and starting up again.

IV. Underdeveloped Government

The preceding remarks seem to point to a causal connection between arrested economic development, however favored by foreign financial aid and personnel, and incompetent government. At the same time it could be argued that underdeveloped government is a result of economic debility. Whichever came first, at the present time in Afghanistan and most other Middle East countries, governmental weakness and economic stagnation form two parts of an iron ring, each supporting the other and together strangling the development plans of the countries concerned.

The instability and inadequacy of the administration seem to arise from several causes. In Afghanistan, as in several of the Arab countries, political power conflicts within the governing groups and between the governing group and the opposition, is immediately transmitted to technical personnel at the intermediate level. The vagaries which accompanied the preparation of the Afghan five-year plan in 1949-50 may serve as an illustration:

There was, in the first place, the personality of the Minister responsible for the plans, a man who grew from rags to riches at the trade crossroads of Central Asia, established his country's first commercial bank and held the financial strings over the country's only industrial plants. Though not related by marriage or blood to the ruling clan, his business acumen, diplomatic talents, and autocratic ways paved his way into the post of Ministry of National Economy at a time when the country needed business leadership, following the world depression. Not endowed with the American predilection for statistical detail, his decisions for allocating financial resources among the coun-

try's private and public segments were based on visions which he could justly claim had in the past been crowned by commercial success. In addition, where choices for the use of resources were limited, the tolerable margin of error in statistical information was, happily for him, fairly wide. There was also a uniqueness about his staff. He was ably assisted by an Under-Secretary whose devoted government service was fortified by his contacts with education and life in France, Germany, Italy, and the United States. His handicap, however, was that without practical experience in making economic decisions and assuming the responsibility for them, his vision of economic relationships and development plans were rarely separated from emotional and nationalistic wrappings. A second aide was a mature Vice-President of a textile plant who had been trained in business organization and methods in Germany. He lacked the vision and imagination that the other two had in such abundance.

The strength of this group rested in the personal influence of the Minister himself. In dealing with his ambitions and proposals, one had to be aware of the unusual concentration of economic power represented by himself and his aides and, at the same time, of the narrowness of its political base. Despite his control over the Ministries of Public Works, Mines and Transportation, the Department of Agriculture, the Central Bank and the much larger commercial bank, he was never able to sell his five-year plan to the Council of Ministers. One of the major reasons for this defeat, as well as for the corollary delay in ratifying the credit agreement with the US Government, was the conflict between the Minister and the Prime Minister. Not only were the drain on foreign exchange and the high cost of the American contracts' operations ascribed to his policies, but a large body of traders and intelligentsia took a dislike to his private business methods. When the parliamentarians were not satisfied with the explanations he found himself virtually without political support. He resigned and with him faded the dynamics of a getting-things-done attitude. It took almost half a year for his younger associates and new appointees to pick up the strings and obtain cabinet action on some of the projects of the five-year plan and parliamentary approval of the American credit and the new contract with the American construction firm. However, no governmental action was taken on the industrial portions of the five-year plan. Instead, the former Minister of National Economy, resuming his activity as President of the commercial bank, assigned German firms to the textile expansion and hydro-electric power project which he was able to push due to his unique control over a large part of the country's foreign exchange earnings. Thus, a development plan, which in 1949 appeared reasonably cohesive and balanced, fell victim to paralyzing political conflicts. It is quite possible that, in conceiving this plan, the Minister had underestimated the degree to which his programs would have encroached on the economic power of his political opponents or, if he did understand these ramifications, he underestimated the resistance.

One of the causes of administrative incompetence is clearly political instability and the inevitable corollary: frequent changes in personnel. But there is another cause too: Instability in administering technical assignments such as organizing materials, labor and money for reclaiming land or resettling nomads need not be affected by political changes at the top provided there is a body of experienced senior and junior civil servants who can operate the administrative machine. Such

government servants have been slow in making their appearance. And such as have emerged have been able to do so in spite rather than because of official policy. In fact there is no policy to train, "in service" or otherwise, a civil service system. On the contrary, many trained at great cost abroad are wasted on minor jobs after their return.

But it would be idle to bemoan the absence of programs and policies without recognizing the legacy of history which handicaps this and other governments. The conceptual core itself of "government" in the modern sense is not firmly rooted in Middle Eastern institutions. The idea of the central state with its sovereignty over all those living within its borders is an imported one. In the west it evolved out of a process in which a central authority assumed more and power from separate groups and dominating personalities and placed sovereignty in a politically homogeneous group of people enjoying common rights and duties towards the state authority. This concept, when exported to the Middle East, clashed with the old Eastern state, controlled by a different principle, that of personality and status. Membership in a tribe or a socially-privileged group was the significant factor. Whatever central control existed was a reflection of the power and dominance of such a group. To this day both concepts, having been in contact for several centuries, live on side by side. The domination by independent provincial potentates has been undermined by anonymous central authorities, abetted by secularization and modern systems of communication. The extent of this growth of central power varies throughout the area. A common weakness, however, is the lack of self-reliant, local administrative bodies, to which a workable amount of authority is delegated. Even the most modern of the states, Turkey, has authority heavily concentrated at the top resulting in a creeping paralysis of government work. This weakness has grown commensurately with the extent to which the state has assumed greater responsibilities in the economic sphere. Even the most minor decisions frequently have to be referred to the Council of Ministers, such as, for instance, the sale of stock of a private corporation to the Turkish public.

Another weakness is the lack of fruitful cooperation with the people's representatives. It was idealistic on the part of the founder of the present Afghan state, Nadir Shah, to state in his inaugural address (1929):

> Representatives from all parts shall assemble at the center ..., the people selecting them from among those who are learned, wise, faithful and have the good of the country at heart, and in whom the nation can fully put its trust.

The difficulty with this pledge was that, in most Moslem countries as in Afghanistan, the concept of a class of officials serving the state rather than their own interests had not as yet been developed. Official duties had been in the hands of favorites and friends of the ruler. Throughout the area there had been centuries of corruption based on the view that everything within the domain of government could be bought.

Having been so long indifferent, if not opposed, to government intervention the masses of the people still seem to be dominated by a passive contempt, if not active animosity, toward the state, especially when cooperation with a parliamentary body

has failed to materialize. The effort to unify divergent factions and tribes is still a hard struggle. For the purposes of this paper the significant aspect of this struggle is that the ruling power is more frequently than not in alliance with feudal land-owners many of whom double up as influential traders. They inevitably direct public programs toward limited ends. The result is likely to be a governmental policy shifting irregularly from planned economy to laissez-faire and back again. An alliance between a business middle class and the state is generally still impossible because the former does not yet exist on a large enough scale. Where it does, it struggles against indifference and hostility toward expanding industrial activity. At the same time, it is quite possible that the lack of an astute middle class has encouraged the state to take much of the means of industrial production into its own hands. Where the state authority is associated with a monarchical or other vested interests, intervention in economic activities by the state tends to become a tool by which the ends of that clique are furthered still more. This would be consistent with democratic ideas if the state's exercise of authority were sufficiently controlled by enlightened voters and their representatives. But even a mere threat to hold a King to the tenets of a constitutional monarchy by a group of voters can lead to imprisonment.

Evidence on how far even those with reasonably adequate experience still have to go may be gathered from the planned structure and power of the above-mentioned new Development Commission for the Helmand Valley. Its departments of engineering, financing, planning, settlement, education, agricultural extension, industry and power were to have absolute authority over all regular government activity in the Valley, even to the point where the local governor was to align himself with the policy of the Commission. In other words, the new organization would supercede the responsibilities of the established agencies. This project was in line with recommendations US and UN technical missions had put forward and was apparently patterned after the TVA. But the possibility of conflict with the groups entrenched in the regular ministries was not recognized. Since the Helmand Valley is a large area, concentration of administrative effort there would not only favor it politically and economically above the other, but would weaken the administration in the other regions as staff would tend to be drawn to the new body.

V. Vacillating Participation of Government in Business

A more fundamental cause for governmental weakness in the economic realm must be considered the rather vacillating attitude about the role of Government in business. There is ample evidence that this uncertain state of mind among people in positions of influence and authority is in part due to the uncertain quality of the knowledge East and West share about the function the State may properly assume in the investment process in underdeveloped colntries. There are four aspects to the problem that need to be emphasized.

1. First, as the author was able to discover from his contact with the largest shareholder of the bank financing all private enterprise in Afghanistan, private investment in the Middle East has a distinct mercantile odor about it. Much of the original wealth that went into textile plants in Turkey or Afghan-

istan stemmed from profitable trading operations, and many of the present share owners are at the same time active in trade, domestic or foreign or both. The limited market for manufactured products because of low purchasing power and the persistently high profit that attracts in real estate investments have kept weak the propensity to invest in industry. Where such investments have taken place, they were based on speculative expectations. And high profits have indeed been earned, either because the manufactured products were able to substitute for imports so that a new market did not have to be created, or because they were able to reap the scarcity profit that lack of skilled entrepreneurial services frequently creates, or because inadequate provision for capital replacement and high inventory revaluation (under persistently inflationary conditions) have added illusory profits to actual profits. As a result, the pursuit of profit through small margins earned on large volume, is a rare motivation among private entrepreneurs. A 20 per cent margin is generally the goal which they are shooting at. But where such a margin can be expected, and where investors have confidence in the business management and its marketing practices, investment in dustry has attracted not only the trader but also the thrifty farmer and small town merchant.

Part of the character and psychology of the entrepreneur has been based on the monopolistic position he frequently enjcys. Whether under the umbrella of a government license, or charter, or government restriction on imports, or under the protection of a less artificial monopoly over funds, marketing outlets and foreign exchange resources, he rarely is exposed to the competitive pressures of the oligopolistic or traditional type familiar to an American entrepreneur. The pressure to make correct decisions, or alternatively, to go out of business, originates primarily with the stockholders when they claim higher dividends, or are asked to pay their subscriptions.

It is difficult to imagine how the role this type of private enterprise could play in the planned development of the Middle Eastern countries could be similar to the function of private enterprise in the rapid advance of capitalistic countries. Here, the overall expansion of the market which had to accompany the investment in each new industrial enterprise was accomplished by the actions of a large number of entrepreneurs, acting spontaneously and concurrently, carrying out innovations or imitating others, producing successive waves of applications of capital to a whole series of economic activities. Thus, not isolated islands in the society, but a large number of diverse segments were equipped with ever-increasing productive capacity, making possible the increasing flow of consumable goods and services. True, in the process individual enterprises suffered losses and waves of technological unemployment hit various industries in succession. But enough technological creativeness and faith in the potential market seemed to provide adequate motivation to overcome this handicap.

The operation of free capital accumulation and investment in response to market incentives owes its existence to the power and size of a class of citizens not only endowed with specific virtues, such as managerial know-how and technological skill in ever recombining productive factors, but also imbued with a peculiar spirit, that of acquisitiveness in spite of risks attached thereto. As in Europe in the seventeenth and eighteenth century, this class, though growing in the Middle East, has a hard time struggling for recognition, let alone par-

ticipation in the affairs of State. As long as it is juxtaposed to well entrenched economic and social groups, it cannot be counted to rescue the Middle East from the stationary equilibrium of underdevelopment. This picture of early capitalist development is alluded to here only to contrast the role of private enterprise in the West with that assumed by it under present conditions in the Middle East.

2. The second aspect of the vacillating nature of the State's relation to private investment is that State authorities have not as yet evolved a clear, let alone consistent, idea of how to fill the vacuum left by impotent or politically weak private enterprise. Only the die-hard advocates of free enterprise at all cost (Thornburg, for example) ignore the fact that in other than capitalistic types of society the forces that have to perform certain indispensable economic functions may have to be organized deliberately through some form involving central, instead of individualistic, direction, demanding public instead of private financing. But this recognition, apparently widely shared in Middle Eastern countries, certainly in Turkey, Iran and Afghanistan, and to a lesser degree in Iraq and Syria, is no guarantee that economic stagnation will be successfully overcome. It is commonly overlooked by State enterprise advocates that turning over economic progress to State bodies merely alters the administrative form not the economic nature of the solutions. Unfortunately for progress, however, the economic solutions carried out by these bodies so far have shown ineptitude and serious miscalculations.

The question of the administrative forms favoring economic growth is still hotly debated, particularly in countries where neither alternative discussed here has had a chance to show its mettle. There is little that one country can learn from another in determining the particular form best adapted to its institutions. So much depends on the human qualities, human motive forces, and broad political considerations.

From the experience with state control of investments in Afghanistan an insight into similar shortcomings may be gained. It was considered possible, at least among the planners in the Ministry of National Economy, that the investment function in regard to new projects, such as cement mill or hydro-electric power projects, could in part be left to private hands, i.e., the shirkats (joint stock companies) and the major stockholder, the commercial bank, provided that some deliberate coordination through "Joint Boards" on which the shirkats would be represented was assured. Apparently it was thought that all that was necessary was to make the funds available to buy the tools and other implements of production. There was no recognition that "investment" workers need a continuing flow of capital in the form of subsistence. This, in real terms, some other class of the population has to supply. If the workers, as was expected, were to be drawn from the overcrowded eastern valleys or from the nomadic tribes, there could have been no automatic transfer of the subsistence funds that supported them in their previous occupation. On the contrary, it had to be expected that the peasants or nomads remaining behind would share in the subsistence set free, and not save it. They would have to be taxed to mobilize this fund, or requisitioning would have to be instituted, or some other complementary source of savings would have to be tapped. Whatever the source, it was clear that some measure, enforced by the State and the State only, would have

to be taken to mobilize the resources necessary to keep the new investment workers going. This function, seemingly a natural one for the State, was not recognized. The same blindness was noticed in financing public investment projects. The result was that the Government and other investing agencies found themselves consistently short of funds for wages and other local expenditures. It was possible to make the Government see, however, the impact of large investment activities on imports of consumable goods and the need for larger allocation of exchange to cover them. (5)

3. The third aspect of public investment activities is the misinvestment that frequently accompanies it. The early dissipated efforts in Afghanistan, due to inadequate preparation were referred to above, in another context. A more tragic misinvestment in this early phase was the authorization of the establishment of lavishly furnished supply camps and workshops by the contractor when it could have been ascertained that this would be economical only if the contractor could count on at least $10 million of annual construction business. The scale of the investment in the overhead facilities should have been geared to a much smaller volume of business. More significant yet for the international ramifications of transferring advanced technology was the realization that perhaps the capital-intensive nature of the contractor's technology itself should have been analyzed. It is as yet not possible to make a final determination whether another type would have been more sound. But a particular feature of this early experience requires some elaboration. In Afghanistan, as well as many other parts of the Middle East, American contractors are blamed for excessive costs, as compared with European charges. This, it was learned in Afghanistan, was due to the difference in construction methods, that is, difference in the proportions in which labor and capital are combined, rather than in absolute expense. For the American contractor labor is the high-cost factor, while labor-saving construction equipment is welcome because of its relatively low cost. But in Europe, and even more so in the Middle East, labor is available at a relatively low rate, while the acquisition of machinery is hampered by high local capital cost and foreign exchange shortages. This difference is not offset by differences in labor efficiency, as it might be in the highly skilled industrial trades.

The result of the transfer of an American contractor and his construction method to a labor-intensive economic environment must inevitably clash with the prevailing concepts of waste and economy. An Afghan worker would think nothing of walking for hours to retrieve a bag of sand that had fallen off a truck. To recover the lost bag is wasteful to the American and yet a natural economy to the Afghans. The American technology appears far more expensive than the European or Asiatic technology applied to the same job over the same period only if the element of time is disregarded. But the American method appears in a different light if time is measured in terms of dollars lost -- like the opportunity lost in the Helmand Valley to produce better crops in a given year. Consideration must be taken not only the value of the annual income produced by a quickly completed construction project, but also of the economic and social instability caused by slow construction methods in a country in which the bulk of the population lives at the bare subsistence margin in the midst of great potential resources. But then again time is not measured that

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(5) Afghanistan's Economic Development Plan, pp. 111-13.

way in the area. Hence it is difficult to say whether the whole arrangement with the American contractor by which he was free to transfer American "standard" engineering and construction technology to Afghanistan was a misinvestment. But the point that should be made is that the Afghan Public Works Ministry which initiated the contract never recognized this economic problem.

Most cases of misinvestment or unbalanced investment on the part of Middle East Governments concern neglect either of projects complementary to other projects already under way, whether private or public, or of projects creating social or public overhead facilities whose benefits are common to many different lines of production. Roads, power plants, ports, public storage and water supply facilities are typical. They create external economies to enterprises producing commodities for sale and thus possibly determine the profitability of any one of them. For example, the new $8 million Arghandab dam in Afghanistan completed this year may increase grape and other deciduous fruit production in the next several seasons. If neither refrigeration or transportation or storage facilities or better farm to market roads follow quickly, the dam will prove to be at least a premature investment, if not a misinvestment. A contributing factor in the confusion about public investments in the Middle East has been and still is the vacillating policy of international financial agencies towards them, particularly investments in social overhead facilities. As they do not liquidate themselves as such, but merely contribute to the return of other "productive" enterprise, they have been less attractive than the latter. This several governments have misunderstood as a sign of lack of economic value in general.

4. The fourth point in regard to the difficulties of working out a stable relationship between public and private investment is the unstable flow of public investment. The narrow base of the fiscal revenues in the Middle East forbids us to ascribe fluctuating outlays solely to fluctuating minds. If, in the US domestic investment, which sets the pace of economic activity, drops there is at least the comfort that the decisions which determine the volume of that investment are made within the boundaries of the country. That is not the case with most of the Middle Eastern countries. Investment decisions by public or private bodies are to a large extent determined by the value of exports to industrialized countries. These in turn depend upon the fluctuating demands upon which the limited political and economic influence of the exporting countries has little bearing. With a recession in the industrialized countries' demand for industrial and agricultural raw materials frequently drops drastically and people in the Middle East suffer restrictions on income if not unemployment. The consequent stoppage of government revenues affects all other economic branches adversely. Thus much of the activating force behind those fiscal vacillations resides outside the Middle East.

Conclusion

It is hard to put a common denominator under the various aspects of inadequate planning. To say that they reveal inadequacies in economic conceptualization and in government is somehow not enough. To blame economic debility and underdevelopment or poverty is misleading.

> They are not too poor. What they mistake for poverty is merely an error in dealing with first resources first. The greatest resource they have, the resource without which they fumble the development of lesser resources, is their own people. For each of the hardworking Afghan boys being given the rudiments of literacy, there are 15 or 20 others being given no education. (6)

Unless the level of understanding among the presently illiterate is raised and the best use made of those already highly trained, much of our worry about instability and economic stagnation in Afghanistan will be with us for a long time. But this is one link in the strangling chain of incompetence and underdevelopment that can be strengthened -- without incurring political and economic fireworks.

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(6) Harold W. Benjamin, Dean of Education, University of Maryland, member of UNESCO Mission to Afghanistan, 1949, in National Commission News, January 1950.

THE BRAZILIAN SALTE PLAN: AN HISTORICAL CASE STUDY OF THE ROLE OF INTERNAL BORROWING IN ECONOMIC DEVELOPMENT*

The Brazilian SALTE Plan, as described and analyzed in this note, is a matter of past economic history. Although many of the individual projects incorporated in it remain in the present investment programme, the Plan as a whole no longer exists. Thus, the present study deals with what is now entirely an historical interval in the history of Brazilian development, and is in no way designed to deal with any present problem. On the other hand, the history of the SALTE Plan is sufficiently recent, and also of sufficient general application, to bring out some problems of importance and more general application, to underdeveloped countries. It is with this intention that the study is submitted to students of economic development problems.

I. Nature of the Brazilian SALTE Plan and Its Proposed Method of Financing

The Brazilian SALTE Plan was a public expenditure programme covering five years. It was in no sense a plan for the Brazilian economy as a whole, and did not contain, in the form in which it was passed, any major directions or targets for the private sector; nor did it contain any statement of policies regarding inducements and controls which would apply to the private sector of Brazilian economic life.

The Plan was not a full public expenditure programme, since a number of public services, in particular education, development of the iron and steel industries, municipal services, etc., had been excluded from it.

It appears that the SALTE Plan was an addition of departmental projects in the four sectors of which it was composed -- health, food, power and transport. Both the total magnitude of the sum to which these various projects added up as well as the distribution of this total sum between the four main sectors, and within the four main sectors between the various sub-sectors, do not seem to have been predetermined by previous research or in relation to total amounts required or possible within given frameworks of finance, nor by previous studies of the relative priorities to be attributed to the various sectors. A subsequent process of partial reduction took place in the Inter-Party Commission and in the Congressional discussions, but this process of partial cutting down was based on the study of individual projects rather than on a picture of available economic resources or of desired lines of development for the whole Brazilian economy; and, in essence, the Plan remained a summation of departmental projects.

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*The author is a member of the United Nations Secretariat, but the views expressed in this article are his private opinions and do not necessarily reflect the views of the United Nations Organization.

A striking feature of the Plan was the high proportion of total expenditure devoted to transport. There was general agreement that improvement in transport is one of the main requirements for the development of the Brazilian economy. It appears, however, that the precise percentage devoted to transport, and particularly to railway transport, was not based on any study of the relative costs and benefits of different types of development, with various degrees of concentration of development in the already more highly developed coastal belt. However, the heavy proportion of transport in the total cost of the Plan was due more to an improvement of the existing transport system than to its extension. Hence, previous conscious decisions on the degree of concentration or dispersion of development might not have affected the percentage allotted to transport expenditure in a major degree. Secondly, the freedom of purely economic action in making major decisions on the lines of economic development was limited by the federal constitutional structure of the country, for which allowance had to be made and which is also reflected in the system of constitutional grants.

As to the total size of the Plan, as distinct from its distribution over the various sectors, no similar political constitutional limitations obtained; but in this respect, also, no attempt was made to determine beforehand the possible or safe or required totals of expenditure. While the Plan, in the absence of additional financial provision, might well have been too big within the framework of existing financial provisions, a more general economic analysis suggests that in the light of Brazilian total requirements, it might equally well have been too small and would have had to be supplemented by a great deal of private investment made possible or induced by the improvements in basic services visualized in the Plan. In that case, the budgetary problem of providing for at least Cr$6 billions additional expenditure -- on optimistic assumptions -- would be over-shadowed by the problem of financing a great deal of additional private (and possibly public) investment.

On the other hand, the Plan included not only special development projects which would be additional to previous appropriations or normal administrative services, but also some such services for which normal provision was made either in the ordinary budget or in special constitutional appropriations. The Plan, therefore, had the effect of carving out from the normal budget statement some of the expenditure which was assumed to be of a developmental nature, and was thus a step in the direction of "functional" budgeting. As far as financing is concerned, it follows that not the whole of this expenditure should be treated as additional expenditure. It appears that of the total outlay for 1949-1953, of Cr$18.3 billions, about Cr$4 billions represented activities normally included in the ordinary budget, and Cr$1.5 billions represented activities normally based on budget appropriations for constitutional purposes. This left Cr$12.8 billions for new financing.

On the technical side, the Plan had been prepared in great detail and the various projects included in it were described for the full five-year period. An Inter-Party Commission had been formed and had approved the total expenditure visualized by the Plan, as well as the detailed projects on which it was based. As a result of the approval given by this Inter-Party

Commission, it was generally agreed that there would be considerable moral pressure, amounting to political necessity, to execute and implement the Plan roughly in the form in which it had been passed by the Brazilian Parliament.

No similar attempt, however, had been made to reach Inter-Party agreement and corresponding moral pressure towards implementation in respect of providing the additional resources required for the implementation of the Plan. It is doubtful if there was a general realization and acceptance of the principle that the intention to implement the Plan should also include an intention to provide the means towards that end, i.e., the finance needed to execute the Plan without inflation.

Thus, not only was the Plan itself distinctly less concrete on how it was to be financed, than it was in respect of the projects to be included, but also no moral pressure existed to take the unpopular part of the Plan, namely to finance it without inflation, out of the sphere of party politics by the method of Inter-Party agreement, such as had been done with the popular part of the Plan, i.e., the desirable projects included in it.

Of the Cr$12.8 billions to be found, it was anticipated that Cr$1.7 billions would be obtained from taxation of the additional income resulting from the Plan itself. It is noteworthy that the proportion of the public outlay suggested under the Plan, which was expected to revert in the form of increased yield of taxation (under 10 per cent), was less than the total proportion of the budget to national income, which was at least 14 per cent. Thus, the Plan did not seem to reflect any conscious effort to recover part of the capital outlay by special fiscal measures, such as collection of contributions from the main beneficiaries of the outlay. Furthermore, the Plan did not itself provide for the cost of maintenance of the public projects suggested, which was presumably to be added to the normal budget in future years.

This left a further Cr$11.1 billions to be found. Of this total, it was expected to obtain Cr$2 billions by the utilization of the foreign currencies then in the Bank of Brazil. While this reduced the problem of finding non-inflationary finance to Cr$9.1 billions, it could be pointed out even at the time that the utilization of these currencies for the purposes of the public development programme was likely to create foreign exchange difficulties in providing for the foreign exchange requirements of the private investment induced by the improvement of basic public services of the Plan. Thus, it was only with some reservations that the utilization of the foreign exchange assets of the Bank of Brazil could be accepted as providing to its full amount a solution of the financial problem posed by the Plan. If the Plan was to be at all successful in its objectives, it had to induce a great deal of complementary private or other public investment. This point will be raised again later on, in a different context. As to the remainder of Cr$9.1 billions, it was hoped that another Cr$3 billions would result from the readjustment of Customs tariffs to put them back on a proper ad valorem basis.

This left an uncovered core of expenditure to be financed, to the extent of Cr$6.1 billions. No specific cover for this

sum was described in any detail. The bulk of this sum was to be covered by borrowing operations. A small part was to be covered from the proceeds of the sale of stocks of the National Coffee Department. This latter source of finance was somewhat speculative, since it must evidently depend on the state of the coffee market during the subsequent five years, which was obviously unpredictable. The internal loan operations involved, as then visualized, would have involved the heavy carrying charge of 17 per cent during the ten year period 1955-1965, and thus would have created budgetary problems during that period, even if carried out without immediate inflationary consequences.

It may be pointed out that in reducing the problem of unsolved finance to a magnitude of some Cr$6 billions, the real problem was underestimated, since budgetary equilibrium in government expenditure outside the development plan was assumed. This, however, was not the case. After a period of equilibrium and small surpluses in 1947 and 1948, the budget for 1949 had reverted to a deficit of about Cr$3 billions, and the forecast for 1950 was for another, though lesser, deficit. Hence, the lack of any indication of the precise methods of covering the uncovered gap in the finance of the SALTE Plan assumed added importance.

Thus, the SALTE Plan imposed pressure on the financial resources actually made available, and this pressure was to be offset largely by means of internal borrowing. The rest of this note is concerned with this particular aspect of the Plan.

II. Problems of Internal Borrowing for Economic Development

It must be pointed out that a government cannot "borrow" at all, in the internal market, in the sense in which a private individual or business unit can borrow internally, or in which a government can borrow externally. A private individual or business unit, in initiating a new business venture which he hopes will result in increased assets or increased earning capacity, can borrow instead of financing the venture by his own savings. This will reduce his present sacrifice and enable him to pay for the venture later from the expected future increase in his income and assets. The same applies to external borrowing by a government. The idea of internal "borrowing" in this sense, however, is a fallacy. Present development has always to be paid for by a present curtailment of consumption or unessential expenditure, or else by a present additional productive effort. It is not possible, by internal "borrowing," to postpone the real burden of economic development to a future date. This argument applies whether borrowing is inflationary or non-inflationary in character. The only case when a present sacrifice can be avoided by internal borrowing is where there are unemployed resources which can be brought into play by the borrowing itself. This general point is stressed here, partly because there is much confusion on the subject -- by no means only in underdeveloped countries -- and specifically because behind the borrowing provisions of the Plan there possibly was an idea that, by resorting to borrowing, the burden of financing could somehow be shifted to a future date when either the budgetary position or the real income position was expected to be more favorable. It cannot be stressed too much that resort

to the technique of internal borrowing does, by no means, obviate or diminish the need for decisions of exactly by whom and in exactly what form the sacrifices of accelerated development are to be carried.

Internal borrowing, then, is no more than a specific budgetary technique. Dealing only with non-inflationary borrowing here, that is, borrowing from current incomes of persons or business units, we may say that borrowing is a specific form of taxation different from other taxation in three respects: (a) the assessment of the taxpayers is voluntary; this is on the assumption that subscriptions to government issues are purely voluntary; (b) that the taxpayers receive an asset in exchange (which they can realize if an active securities market exists); and (c) that together with the asset they usually, although not always, receive a promise of return of that tax at a specific future date.

From both points of view, it can be seen that the resort to internal borrowing at a time when no deflationary pressure exists, i.e., no new resources can be brought into production, is essentially defeatist. It implies that the government abrogates the compulsory assessment of the community in favor of voluntary assessment; it abrogates the full deflationary effect connected with taxation, by creating assets which can be liquidated through being sold back to the banking system or to the government itself; it abrogates the rights to transfer the savings of the community to its own purposes -- so far as subscription to government loans come out of savings instead of consumption -- since the assets created may enable the subscribers to maintain their initial investment plans by selling them again; finally, it abrogates its future budgetary freedom by undertaking commitments for paying interest, and in many cases also repayment, for the revenues now received by borrowing.

From the economic and statistical data available, there seemed no reason to be defeatist in this sense, i.e., to abrogate taxation in favor of borrowing. There was no deflationary pressure in Brazil; the prospect was for continued inflationary pressure for a long time to come, the more so the more the SALTE Plan succeeded in inducing private investment, and the more investment in Brazil approached the true economic requirements of the country; much of the present and future investment was to be of a long-term nature, (1) such as to yield increases in income only over a considerable future interval of time; (2) it would be rash to count on a heavy influx of foreign capital to carry the major portion of the inflationary pressure; on the contrary, foreign trade would almost certainly contribute to inflationary pressures; the present tax burden on the estimated National Income of Brazil was very low, only about 14 per cent;

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(1) In the terminology introduced by J. R. Hicks, "slow investment" rather than "quick investment." See J. R. Hicks, "World Recovery after War -- a Theoretical Analysis," Economic Journal, June 1947.

(2) This, also, seemed a strong reason for discouraging all unessential investment of a special long-term nature, as for instance, such real estate development as does not directly contribute to economic development.

all experts seemed to agree that the yield of taxation could be increased both by raising tax rates, changing methods of assessment and improving collection. (3) The budgetary method of controlling inflation and offsetting the expected accelerated pace of public and private investment is much more important in Brazil, relative to the possibilities of monetary controls or direct physical controls, than in most other countries, since it is fairly generally agreed that direct price and consumption controls other than import controls are very difficult to enforce in a vast and federal country like Brazil, and that monetary controls are also very difficult in view of the lack of a developed and unified capital and money market.

If, in spite of these considerations, resort to borrowing was accepted as inevitable, the next question arising is that of the cost of borrowing. The cheapest form of borrowing would be for the government to induce the population to hold more money. Money held by the population -- as long as it is held and not converted into goods -- amounts to an interest-free loan to the issuing government, and is thus the cheapest form of borrowing. An increase in the supply of money has also been recommended as a useful measure in reducing rates of interest and in maintaining a "cheap money policy." Since rates of interest in Brazil are very high, this might be used as a further argument in favor of increasing the supply of money. We shall, however, attempt to show that in the case of Brazil this would have been wrong, since the high rates of interest were not due to an excessive "liquidity preference," but due to entirely different structural reasons; an increase in the supply of money in Brazil would raise the rates of interest, rather than reduce them. Moreover, even if people are willing to hold increased amounts of money, by its very nature money is more easily converted into goods than securities, and hence there is always the danger that government borrowing by trying to induce the public to hold more money will, ultimately, lead to inflation; or, if spending is prevented by direct controls, to the symptoms of "latent inflation." Hence, the policy of obviating the high rates of interest now prevailing by inducing the public to hold more money cannot be considered as a reasonable alternative policy in the special circumstances prevailing in Brazil. Before considering the other extreme of simply "following the market" and accepting the high rates of interest as a standard for government borrowing, we shall try to set out in the next paragraphs the reasons for thinking an increase in the supply of money an inappropriate method.

The high rates of interest in Brazil seem sometimes to be considered as an inevitable and normal expression of the great need for investment and the scarcity of savings. This, however, seems in line neither with economic thought nor with observed facts. A country like India, which is certainly as much in need of development as Brazil and where available savings in relation to the need for investments are not greater than in Brazil, has rates of interest very considerably lower than those of Brazil, and the Indian government has been able to borrow money internally at very low rates of interest. The high rates

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(3) The Joint Brazil-United States Technical Commission made a number of proposals not involving any major fiscal reforms, which would increase tax revenue by Cr$15 billions per year.

of interest in Brazil are attributable to two reasons other than the scarcity of capital and the weakness of banking and financial institutions which are common to underdeveloped countries generally. -These two special reasons are:

a. a long experience of inflationary movements, which has led to widespread anticipation of future increases in prices, thus making for a money rate of interest which is much higher than the anticipated "real" rate of interest, and extending demand for credit at given money rates of interest considerably, especially for short-term and speculative investments, on the one hand, and for very long-term investments creating "safe" assets, on the other hand; and

b. that the rate of interest in Brazil has to overcome not the desire of holding money (at zero rates of interest) for safety, etc., reasons, but rather the pull of real estate investment (at 8 per cent plus protection against inflation). Real estate had taken the place of money, as far as the formation of rates of interest is concerned, and Brazil is in the condition of a country with a system of money which gives the owner an automatic interest of 8 per cent, with full protection of its real value. In such conditions, one would not expect the rates of interest to be any lower than they are.

It follows that if a successful reduction in rates of interest was to be achieved, which would enable the government to borrow more cheaply than at the present extraordinary rates, measures were required which were not at all in the field of monetary policy. The two measures required were, first of all, to restore money to its proper place as "money" and remove from real estate its money character; secondly, to remove the fear of future inflationary movements. Insofar as real estate investment and real estate development were in themselves results of the fear of inflation, it might be argued that it would be sufficient to remove the fear of inflationary pressure, and that real estate investment would then automatically be reduced and returned to its true status in relation to money. This, however, was probably fallacious, for three reasons:

a. Investment in real estate had to be reduced and cut in any case, in Brazil, for reasons connected with available real resources, quite apart from the problem of how to reduce rates of interest. The fact that reduction of real estate investment was also an essential piece of monetary reform was an additional argument, but not perhaps the main argument.

b. It is by no means certain that excessive real estate investment was simply a child of inflationary fears. It may be much more deeply rooted in consumers' preferences, and thus has to be attacked directly.

c. An attack entirely through the removal of inflationary pressure, leaving real estate investment alone for the time being, will be a very slow process to result in reduced real estate investment. Development cannot wait for that, and while it proceeds, inflationary pressure will be renewed and any previous confidence will be undone. Elastic expectations of future prices have penetrated deeply into Brazilian economic behavior and customs, and this cannot be undone quickly by one or

two years of temporary budget surpluses. (4)

In addition to the direct attack on further unessential real estate investment, a reduction in the rates of interest would presuppose an effective end being put to the constant inflationary expectations. This could only be achieved by a solid budgetary surplus continued for several years, thus creating a new tradition. This leads us back to a somewhat paradoxical conclusion. For the Brazilian Government to borrow cheaply, it would have been necessary to destroy inflationary expectations by a budgetary surplus -- but if the government has a budgetary surplus, it need not borrow at all. Thus, the real conclusion reinforcing our earlier argument is that, in order to be able to borrow more cheaply at later stages and bring down the high rates of interest, the government should not borrow at all at the earlier stages.

If the analysis given in the preceding paragraphs is correct, the following policy would emerge for the internal borrowing operations of the government:

a. Selective but considerable increases in taxation, and a solid budgetary surplus, not just once or twice but as a tradition.

b. Unessential real estate investment to be directly controlled by measures appropriate to the administrative and institutional circumstances of the country.

c. Government loans at moderate rates of interest, such as perhaps 5 per cent effective yield, to be placed "on tap," i.e., to be available without specific issue at any time for subscription either by the public or by the banks. Thus, no special efforts need have been made to push the sales.

d. In the course of time, the combined effects of the budgetary surplus and reduction in real estate development might have

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(4) The high rates of profit in Brazil may be considered as evidence of elastic price expectations created by long experience of inflation. It is often said that Brazil has a "high unit profits mentality," which is assumed to be one of the structural characteristics of the Brazilian economy. From the figures which I have seen, I would seriously doubt whether this is so. The cost of replacing the real capital employed in firms, especially manufacturing industries, has constantly increased; added to that is the fact that equipment is largely imported and that its replacement has been subject to special interruptions and balance of payment difficulties, adding further to the risk of operations. The high rate of money profits is quite fictitious and merely an accounting device for legal purposes. The true rate of profits would take into account the increase in the replacement cost of real capital, past and expected. I wonder if investigation would show that a Brazilian firm, starting operations perhaps 25 years ago, has in fact operated at a higher rate of profits per unit of output than a corresponding firm in the USA or England. An investigation on these lines might be quite illuminating.

reduced rates of interest sufficiently to bring in subscriptions to the new government securities. The banks would probably have been willing at an earlier stage to take up these securities, partly to compensate for the loss of real estate mortgage business. The banks would be faced with the alternative of either taking up the new government securities, or placing their money in productive medium-term loans, largely in industry. The government in turn could have provided ample rediscounting facilities, at low rates, for banks investing in this manner. Where banks were threatened with excessive loss of deposits as a result of direct subscriptions by the public to the new government securities, they might have been enabled to attract savings deposits by the offer of generous rates of interest, if necessary by being allowed to substitute the 5 per cent government securities for cash deposits with the Superintendency and Banco do Brazil, to a suitable degree.

e. Since the government securities would have been placed "on tap," and since the government was under no urgent pressure to sell such securities, no target for subscriptions need have been announced and the government's prestige and credit would not have been affected if no large subscriptions were forthcoming.

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KEISKAMMAHOEK RURAL SURVEY: A STUDY OF FAILURE IN SOCIAL ADAPTATION

The project. Certain areas of the Union of South Africa are reserved for occupation by Africans and are generally known as Native Reserves. These Reserves accommodate somewhat under half the Native population of the country; the larger part of the Native population now being found in the industrial cities, the smaller towns, working on mines or as agricultural laborers upon European-owned farms. (1) The people in the Reserves are engaged almost solely in agriculture and many features of the primitive tribal economy persist. It has long been realised that social and economic conditions in the Native areas are far from satisfactory and various reports have drawn attention to over-population, poverty, mass emigration,low productivity of farming and the progressive destruction of the carrying capacity of the land by over-stocking and bad husbandry.(2) Productivity is so low and land holdings so small that it is seldom possible to support a family on the produce of the land, and large numbers of men, and an increasing number of women, emigrate annually to augment the family income by the wages they can earn in employment in mines or in the industrial centres of the Union. When they have earned some money they return home to the Reserves until necessity forces them to go out to work again. This system of migrant labor, whereby large numbers continually circulate between the Reserves and the industrial centres, is a matter of long established practice in South Africa and has existed on a large scale ever since the opening up of the diamond and gold mines in the latter part of the last century. At present there are over 400,000 such migrant Native laborers employed at any given time in mining alone, and many more are employed in industry and an appreciable number on farms.

Before contact with Western Civilization the African tribesmen were essentially semi-nomadic pastoralists, and ownership of cattle played a major role in both the economic and the social life of the community. Crop production was of minor significance and was generally relegated to women: intensive arable farming was not practised since it was the custom to abandon land whose productivity was declining and to cultivate virgin soil. The whole tribal economy depended upon an abun-

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(1) The preliminary figures of the 1951 Census give the population of the Union of South Africa as:

European	2,589,000
Native	8,410,000
Coloured	1,079,000
Asiatic	359,000
Total	12,437,000

(2) The Report of the Native Economic Commission, U.G.22, 1932. The Report of the Social and Economic Planning Council, The Native Reserves and their place in the Economy of the Union of South Africa, U.G. 32, 1946.

dance of land for its successful operation and when, as the result of increasing numbers the pressure of population began to press upon the land, the tribe moved on or expanded its area by driving weaker tribes away or annihilating them. In this way an economic system which was most extravagant in its use of land was enabled to survive, for inter-tribal wars restricted the growth of population and droughts and disease prevented the accumulation of an excessive number of stock.

After contact with the European settlers who were expanding North and East from the original settlement at the Cape, the whole situation was fundamentally altered. Although the first European settlement was established in 1652, it was not until the latter part of the eighteenth century that the Europeans first came into contact with the black-skinned Bantu tribes, who were advancing into Southern Africa from the North. The contact took place in the Eastern Cape Colony, and a century of armed conflict ensued; first on the frontier of the Great Fish River and later, after the mass exodus of Dutch farmers to the North in the movement known as the Great Trek, the war was carried far into the interior. Before the end of the nineteenth century white domination had been extended over the whole sub-continent and the area available for African occupation had been severely circumscribed. Moreover, white administration put a stop to inter-tribal wars; and the extension of medical services removed some of the checks to population growth which had operated to maintain a balance in the tribal economy. The opportunities for employment in the industrial economy which developed after the discovery of diamonds and gold enabled Africans to earn wages, which with their strong traditions of cattle ownership, they invested in stock, and the introduction of compulsory dipping and the extension of veterinary services reduced stock losses from disease. The result of both these forces was that the Native Reserves soon came to hold a larger number of human beings and stock than, with the prevailing primitive methods of land use, they were able to support. The over-population gave rise to increasing emigration from the Reserves, and the over-stocking to destruction of pasture, soil erosion and heavy stock losses in the recurrent droughts. Moreover it was the active male adults who mostly emigrated and their absence further increased the decline in productivity in the Reserves. The economic difficulties of the Reserves are epitomized in a Xhosa proverb, "Men and beasts beget, but land does not beget."

Although much was known about the Native Reserves in general terms, and there was wide-spread recognition of the need for a positive policy of rehabilitation, no detailed investigation of a Native Reserve had been undertaken. In 1947 the National Council for Social Research sponsored an intensive rural survey of a selected area in the Native Reserves. The aim of the project was to conduct a very detailed and really comprehensive socio-economic survey of an area deemed typical of the Reserves in general, and to produce factual reports on all aspects of the conditions prevailing there, which might serve as the foundations for later rehabilitation measures. It was to be a fact-finding survey and was planned to cover such diverse aspects as the physical and natural resources of the area, demography, the economic activities of the people and their standards of living, the methods and productivity of farming, land tenure and the economic and social consequences of differ-

ent types of tenure, labor (including a study of the extent and consequences of migrant labor), the social structure and the modifications of the tribal way of life, education and health.

The district. After careful consideration the Keiskammahoek Magisterial District was selected as the area for the survey. Most statistical data is published by magisterial districts and it was highly desirable to have an area which coincided with the statistical unit. Keiskammahoek was a compact district of a size that could easily be managed. It covers an area of 224 square miles and has a population of 18,391, of whom 17,243 are Africans, only 641 Europeans, and 507 Coloreds. Predominantly Native, its people are culturally representative of the Shosa-speaking peoples of the whole Ciskei and Transkei. The economy of the district was also deemed to be representative of these Native areas in the matters of distance from effective labor markets, soil erosion, over-stocking, emigration and poverty: it was regarded as being intermediate between districts such as Middledrift and Peddie where conditions seemed worse, and parts of the Transkei where better conditions seemed to prevail.

The topography of the district was also a distinct advantage, because this district coincides almost exactly with the upper part of the Keiskamma River basin and there was an obvious advantage in having a single and complete watershed as the area for study. Moreover, the river basin is encircled on the north, east and west by the mountains of the Amatole range which rise to heights of over 6,000 feet, while the lower part of the district is only a little over 1,500 feet: there is a similar wide range in annual rainfall, from over 40 inches in the mountains to under 20 inches in the lowlands to the south.

Another great advantage was that the Keiskammahoek district lies in the heart of the Ciskei (the area in which so much of the frontier fighting occurred in the first half of last century) because it was here that African tribesmen were first brought under European administration in large numbers when the territory was annexed to the Cape Colony in the middle of the nineteenth century. This is the area in which Africans in their tribal state first came into contact with civilization and affords an opportunity of studying the results of the impact of civilization upon the tribal economy and social structure after one hundred years of European administration.

The survey staff. The National Council for Social Research appointed a former Professor of Pasture Research as Director of the Keiskammahoek Rural Survey and he, with two secretarial assistants, constituted the only permanent paid members of the Survey. It was originally intended to make additional full-time appointments of an economist, an anthropologist and others, but the difficulty of obtaining the services of well-qualified and experienced persons in these fields for what was unlikely to be more than a three-year assignment at a time when there was a world-wide shortage of qualified people, necessitated the abandonment of this part of the program. In its place a plan was evolved for conducting the Survey by eliciting the cooperation of various government departments and the universities, and for obtaining the necessary personnel by tempo-

rary secondment from the former for specific purposes, and by prevailing upon senior members of the universities to give their voluntary cooperation during their vacations and at such other times as they could spare from their academic duties. In addition, a certain number of advanced students working for Master's or Doctor's degrees were given short-term appointments to undertake a specific investigation under supervision.

Although this set-up raised a host of difficulties for the administration of the Survey, it had certain very distinct advantages in other respects, for it brought together, to their mutual enrichment, a large number of persons with a wide variety of experience. University professors in the natural sciences (Geology, Botany, Geography) worked on a common project with professors in the social sciences (Economics, Anthropology) and with officers seconded by the government Departments of Native Affairs, Health, Agriculture, Irrigation and other people, such as the head of an agricultural school for Africans and the doctor at an Anglican mission. There was also close cooperation between black and white in the work of the survey: leading Africans assisted in the work and most of the actual field work was done by Africans who established excellent relations with the African peasants. In the family budget survey, for example, the initial planning and general supervision was undertaken by a professor of economics at a South African university, the family visiting was done weekly throughout a whole year by a team of five Africans, three of whom were trained health visitors seconded by the Department of Health, one was a retired member of the staff of an agricultural college and another was a local resident with a wide knowledge of the district and its people. The analysis of the data was done by senior university students under the supervision of the professor.

The closest cooperation was maintained between the workers in different fields and results in one field were shared and discussed with workers in other fields. The harmonious relations that existed and the willingness with which material was shared, combined with the benefits of discussion with people following a different discipline from one's own, or engaged in administration, gave a breadth of view and a richness of experience that would have been difficult to obtain from a purely academic research team.

The findings. In a short article of this kind it is not possible to do more than draw attention to a few of the more important findings, but full reports of the Survey have been published. (3) The reports fall into two main categories: those dealing with the natural environment, and those dealing with socio-economic conditions. The former cover the topography, geology, soils, climate and botany of the area, and while they are of interest in themselves, their main significance is that

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(3) Keiskammahoek Rural Survey, Published by Messrs. Shuter and Shooter, (Pty) Ltd., Box 109, Pietermaritzburg, Natal. Vol. I, The Natural History of the Keiskammahoek District; Vol. II, The Economy of a Native Reserve; Vol. III, Social Structure; and Vol. IV, Land Tenure.

they provide a background to the general study of the area. In brief, they reveal that the district lacks exploitable mineral resources, is of only limited agricultural value, but that, if sound pasture management is practised, it is suitable for stock farming and, in addition, the prospects for large scale timber production in the mountain areas are excellent.

Population growth affords probably the best introduction to the socio-economic aspects of the Survey. The net increase in the local population has been no more than 1,800 in the past thirty years, and over the last decade the annual rate of increase has been only 0.24 per cent compared with an increase of the Native population of the whole of South Africa of seven times this rate. Moreover, this increase has occurred in those parts of the district where employment other than peasant farming is to be found: the peasant farming population has remained virtually static and the whole of the natural increase appears to have migrated elsewhere. Accurate figures for migration were difficult to obtain but by applying an anthropological technique some interesting information was obtained. (4) It is calculated that, whereas the 1946 census recorded a Native population in the district of 17,243, had all those persons born in the district remained there the population would have been 26,500. It is further estimated that some 5,000 persons have emigrated permanently, leaving a domiciled population of 21,500, of whom 20 per cent, or 4,250 workers, are temporarily away at any given time, working in the large industrial centres. The distribution of those in urban centres between the larger towns is given in the table below, and the distance from Keiskammahoek indicates how far Africans from the district have to travel in order to seek work.

KEISKAMMAHOEK-BORN NATIVES IN URBAN AREAS

	Percentage in Each Centre	Distance by Rail from Keiskammahoek
Cape Town	33%	845 miles
Witwatersrand	25%	642 miles
Port Elizabeth	17%	259 miles
East London	12%	42 miles
Other towns	13%	

(4) Genealogies were obtained from 260 sample families. Each genealogy started with the father or the present head of the homestead, and was brought down to the youngest living member. Africans have a strong sense of kinship and it is believed that this method produced a comprehensive roll of all members of the families over the last three generations. When each genealogy had been completed the informant was asked to state the present location of all living members of the genealogy, and, if they were outside the district, how long it was since they had last been there. It was revealed that of the living members, 35 per cent had left the district, and 25 per cent were in urban areas.

That it is economic necessity that drives the people out to seek work is clearly indicated from a survey of family income and expenditure which revealed that the average cash income of a family of six persons is only about £40 to £45 for the year. To this must be added the value of farm produce consumed of about £7. The total income for a family of six is on the average only £50 per annum or less than £1 per week. Moreover, an estimate of the total cash income of the African population of the Keiskammahoek district for the year 1949 shows it to be derived in the following proportions:

	£	Per Cent
Total cash income	147,300	100
Sale of local produce	8,000	5.4
Government employment, pensions and relief	43,933	29.9
Other sources within the district	22,731	15.3
Remittances from emigrant workers	72,636	49.4

The district is dependent upon imports from outside the area for the whole of its clothing and manufactured articles and for a large part of its food supply: the productivity of the Reserve is so low that almost the only thing that can be exported to pay for these is labor. Remittances from emigrant workers in the industrial centres supports the economy of the Reserve to the extent of almost 50 per cent of its total cash income.

It is poverty which drives men out to work, but emigrants fall into three distinct classes: the emigrant family, the emigrant breadwinner, and the absconder. In the first case the man takes his family with him to town and the whole family become urban dwellers. The emigration of families has both advantages and disadvantages when contrasted with the practice of sending out an emigrant breadwinner. On the one hand, it avoids the disruption of family life; but on the other hand, it is generally believed that the towns are less suitable places in which to bring up a family, for the housing problem is acute and slum conditions are held to have a corrupting influence upon the young. The second class is that of the emigrant breadwinners. The characteristics of this class are that most of the members of the families remain in the Reserve and one or more members of the family go out to work and support the family by sending home a portion of their earnings. The emigrants are domiciled in the Reserve and return home when financial circumstances permit. The advantage of this system is that the family continues to live in its home village and the children are brought up in a rural environment; but the disadvantages are many. The emigrants are often husbands and fathers and their absence for long periods gives rise to many social evils and the general disruption of family life: young men in towns, away from family influence and tribal restraints, acquire havits of lawlessness and vice and their living conditions are often far from satisfactory. Even daughters have to go out to work and half of these women return with illegitimate children conceived in the towns.

Both these types -- the emigrant family and the emigrant breadwinner -- are different ways of trying to secure the family unit against poverty and destitution and to hold it together, but there is a third type of emigrant, the absconder, whose motives are very different. These are mostly young men and women who revolt against the social obligation of contributing towards the maintenance of the family unit. They go to town, abandoning their families to their fate, to escape their tribal obligations: once they are there they sever all connection with their families and can keep the whole of their earnings for themselves.

Although all three types of emigrant are significant, the emigrant breadwinners are by far the largest group and this regular exportation of temporary workers has far-reaching social and economic consequences the more important of which may be briefly listed.

1. It gives rise to an abnormal sex-age distribution of the resident population. Since the emigrants are predominantly male the sex ratio is upset: the most extreme imbalance in the sexes occurs in the age group 25-29 years, in which there were 36 males to every 100 females, although the imbalance of the sexes was prevalent at all ages from 15 to 54. There is also an abnormal age distribution, the proportion of children and aged persons being abnormally high. About 45 per cent of the adult males and about 15 per cent of adult females are absent at any given time. The result is that on each square mile of land in the Reserve there are some 53 children and aged to 28 adult workers, of whom 9 are males.

2. This situation has important social consequences in the break-up of family life and the prevalence of illegitimacy.

3. It has important economic consequences because the absence of so many male adults accelerates the decline in agricultural productivity so that a situation has arisen in which the Reserve is at one and the same time overpopulated and lacking in sufficient labor to make even normal use of the land available.

4. The constant circulation between city and Reserve has given rise to a high labor turnover which impairs the efficiency of the African both as an industrial worker and as a farmer. A typical labor history of an African man is given below.

Born: 1892		First went out to work 1908 (age 16)
Feb. 1908	to Mar. 1909	Worked for German S.W.African railways
Mar. 1909	to Sep. 1911	At home in Keiskammahoek
Sep. 1911	to Apr. 1912	Mine worker, Pretoria
Apr. 1912	to Dec. 1912	At home
Dec. 1912	to Sep. 1913	Mine worker, Witwatersrand
Sep. 1913	to Nov. 1913	At home
Nov. 1913	to Sep. 1916	Mine worker, Witwatersrand
Sep. 1916	to Mar. 1917	At home
Mar. 1917	to Sep. 1917	Mine worker, Witwatersrand
Sep. 1917	to Nov. 1917	At home
Nov. 1917	to Nov. 1919	Mine worker, Witwatersrand
Nov. 1919	to Feb. 1921	At home
		(He was married during this period)

Feb.	1921	to July 1921	Domestic servant, Cape Town
July	1921	to Sep. 1923	At home
Sep.	1923	to June 1924	Worked for building contractor, Cape Town
June	1924	to Nov. 1924	At home
Nov.	1924	to Nov. 1925	Milk delivery boy, Cape Town
Nov.	1925	to Feb. 1928	At home
Feb.	1928	to Nov. 1930	Worked at seel works, Benoni
Nov.	1930	to Oct. 1931	Electric plating works, Johannesburg
Oct.	1931	to Sep. 1932	Domestic servant, Johannesburg
Sep.	1932	to Feb. 1937	At home
Feb.	1937	to Mar. 1938	Mine worker, Witwatersrand
Mar.	1938	to Nov. 1939	At home
Nov.	1939	to May 1940	Mine worker, Witwatersrand
May	1940	to Nov. 1943	Mine worker, Johannesburg
Nov.	1943	to May 1945	At home
May	1945	to Nov. 1945	Mine worker, Witwatersrand
Nov.	1945	to date	At home

5. The circulation of people between the Reserves and the urban centres leads to the introduction of new ideas which are regarded as being disruptive of tribal tradition. The Witwatersrand has been described as "a university of crime" and young men returning from the mines are not always amenable to parental and tribal discipline.

6. Moreover, they often bring back to the Reserves diseases which they have contracted in the cities. Tuberculosis and venereal diseases are now widespread in the rural areas.

Productivity in the Reserves. One might have expected that the limited amount of land available would have led to the abandonment of the practice of shifting cultivation and the gradual evolution of more intensive land-use, the introduction of modern methods of cultivation, to an enclosure movement and selective stock breeding, and to various modifications of tribal economy, such as a more intensive use of labor and capital, to compensate for the relative scarcity of land. No such development is to be seen and there is evidence of increasing impoverishment of the soil and declining productivity per acre.

The returns from both arable farming and stock ownership are deplorably low. The average yield of maize, which is the principal crop and the traditional food of the people, was found to vary from 130 pounds in a year of drought to 500 pounds per acre in a good season; yields which, by any standard, must denote inefficiency and compared with American or European yields are almost incredible. (5) Maize and kaffircorn (sorghum) are almost the only crops grown and the same piece of land may be cultivated year after year without any attempt to supply it with manure or to retain soil fertility by any rotation of crops. Increasing pressure of population has led to steady encroachment upon the forest-clad mountain slopes and the rich forest loam gives good crops for a year or two, but the slopes are too steep to be put under the plough and ploughed lands are rapidly eroded. Little attempt is made to

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(5) At an agricultural school in the district the yield per acre was 1,400 pounds over the last 14 years.

grow any cash crop and farming is for subsistence, but it is estimated that in the drought year of 1948-49 the yield from arable farming was only sufficient to supply food for the population for one-twentieth of the year. The returns from many holdings were nil and from many more were less than the quantity of seed sown. In the relatively good 1949-50 season food for just under half the year was produced.

The African attitude towards stock ownership is very different from that of a modern stock farmer: in fact "stock farming" is a misnomer if it be taken to imply that stock is acquired and bred with the object of producing an economic return, because the Bantu peasant does not have this as his main objective. The reason is to be found in the importance of cattle in tribal life so that ownership is desired per se regardless of any return they may yield. Moreover the practice of ukulobola whereby the bridegroom has to pay six or eight head of cattle to the bride's father, sets a premium upon number rather than upon quality. The result is that the available pasture is always over-stocked with large numbers of poor quality animals which give almost no return in milk or meat. The animals are generally undernourished and the gains in weight in a good season when grass is plentiful are lost because of the failure to slaughter the beasts in their prime: they are generally retained until they die of starvation in the next bad season. The poverty stricken people of the Keiskammahoek district must have lost something in the order of £50,000 in the five years prior to the Survey through the death of their animals due to starvation. Grazing is in common and every man in the village is entitled to graze as many stock as he likes. Many villagers have no stock but some have 30 to 40 cattle and sheep and goats numbering over 50: the average number of stock owned per family was found to be 4 head of cattle, 7 sheep and 5 goats, but this is estimated to be over 60 per cent in excess of the carrying capacity of the pasture. An African resident of the district has written: "Although the people do not usually come out and say it, they object to the limitation of stock because they use their stock in ceremonies connected with birth, initiation, marriage, sickness and death. This is the real objection to reducing the number of stock." The administration has long advocated stock limitation, and this is essential if the land is to be saved from total destruction; but the response has been disappointing. In no other aspect of economic adjustment has resistance and conservatism been so tenacious as in the matter of stock ownership. The African admits that the present situation is disastrous, but replies that the remedy is not stock limitation but the provision of more land. They cannot see that their method of land use is wasteful in the extreme.

The economic condition of the Native Reserves is a national problem of considerable magnitude and a government commission is at present considering it with a view to making recommendations for the rehabilitation of these areas. It may well be, however, that no purely economic solution is to be found because the situation demands much more radical treatment. It is pertinent to remind ourselves that the situation in the Keiskammahoek district has arisen under white administration and that this area has been governed by Europeans for the last hundred years. It is also pertinent to inquire whether it has not come about because of the reluctance of the Administration to disturb

or interfere with African tribal customs. Many of these customs must inevitably succumb to the impact of modern economic forces, and it is absurd to suppose that it is possible to put the new wine of a progressive economy into the old bottles of a tribal social system. It may well be that the whole system of land tenure will have to be radically altered, subsistence farming and monoculture of maize prohibited, common grazing abolished, the retention of large numbers of uneconomic stock for lobola or ritual purposes abandoned, and the notion that it is the right of every family to have cattle and a piece of land to cultivate, regardless of their ability to make productive use of it, radically revised. Such changes would involve the abolition of many tribal practices and traditions and fundamental changes in the social habits of the people and would have considerable political consequences. This study of the Keiskammahoek district seems to indicate most clearly the fundamental unity of the socio-economic life of the people: their religious beliefs, their social mores, how they live and what they eat, are all interrelated. Moreover, the difficulties experienced at present are an illustration of a failure of social adaptation: a failure to adequately modify the tribal system, which was based upon the availability of an abundance of land, to a situation in which land has become scarce and should therefore be used more intensively.

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ECONOMIC SPACE FOR EUROPEANS IN FRENCH NORTH AFRICA

Conquest and Plural Society. Gabriel Esquer, its outstanding historian, holds the conquest mainly responsible for Algerian peculiarities of development since. (1) A victor-vanquished relationship imposed upon a crushed and politically decapitated Algerian people included an asserted conqueror's right to the land itself. An eight-year total war following nine years of confusion and guerrilla war ended in December 1847 with much of

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(1) Preface to his excellent summary Histoire de l'Algérie, Paris, 1950. Much longer account in Ch.-A. Julien, Histoire de l'Afrique du Nord, Paris, 1931, the great one-volume work on the subject. J. Despois, L'Afrique du Nord, Paris, 1949, is a mine of information by a ranking geographer, and has a 45-page recent bibliography. L. Chevalier, Le Problème Démographique Nord-Africain, Paris, 1947, discusses population growth, with tables, in the three countries (ch. I), and has three chapters (all of Part II) on economic or resource aspects of population growth. Population figures from the 1946 Tunisian census can be added from the 1948 Annuaire Statistique de la Tunisie, p. 8. The monthly Bulletin Économique et Social de la Tunisie has articles in addition to the statistical tables. The main population figures of the much-disputed 1947 Moroccan census, with criticisms and revisions by the makers, will be found in the 1950 annual edition of the (also monthly) Conjoncture Économique Marocaine (paging confused -- section on Démographie). Robert Montagne, in his lecture in volume published as Industrialisation de l'Afrique du Nord, Paris, 1952, has misinterpreted the 1950 revision to mean a natural increase under 1 per cent a year. If worked, the problem for which data are furnished implies a rate of 2 to 2-1/2 per cent a year. The downward revisions of 5, then 10, per cent may be no better than the 1947 estimate of roughly 8.1 million Moslems, made from ration cards. Note that underestimations, as in Algeria, began with the so-called "censuses," not with 1936. For population growth in Algeria, the fuller table in the 1939-47 issue of Annuaire Statistique de l'Algérie, p. 21, has been followed. The figures for the 1948 Algerian census (also revised several times) here used for calculating the European percentage are on p. xxxii of the Jan. 1951 issue of the monthly Bulletin de la Statistique Générale. Other lectures in Industrialisation de l'Afrique du Nord, dealing with shifting relationships between population and resources, and used herein, are those of Professors René Dumont (agronomist) and Jean Dresch (geographer). Professor Dumont kindly supplied a copy of his 1949 report on North African agriculture to the "Monnet Plan," which had proved almost impossible to get. Both men are thanked for long and enlightening oral discussions. Raymond Pearl's old Biology of Population Growth, New York, 1925, using native Algerians as the main subject matter, presents logistic curves now outdated by censuses from 1926 on for predictive purposes, but still interesting as estimates of pre-conquest numbers which are consistent with official French figures beginning

Algeria in ruins. "No inconsiderable fraction" (Pearl) of the native population had been killed. Much of the rest had been displaced, dispossed or both, and abandoned fields invited settlement. Pearl strongly doubted that native population could have recovered from the conquest by 1856, when it was reported as 2.3 million in the first "census" -- estimate from loose and partial sampling. The official figure for 1872 was lower, and hence presumably lower also than the actual pre-conquest number.

For the pre-conquest level, Pearl chose 2.2 million, the lower asymptote of the best logistic curve he could construct from the French returns for the period 1856-1921. This figure is consistent with the French censuses, though from the evidence in general Pearl thought 3 million "not much too high." Chevalier asserts that sown area and harvests were still below the 1830 levels forty years later. René Dumont, France's outstanding agronomist, estimates the cereal area in Algeria around 1870 at 2.1 million hectares or roughly 5.2 million acres. Practically the whole cultivated surface was devoted to cereals, as in 1830, and the cereals were still grown chiefly by natives in the time-honored way, even on European-owned land. All of the historical estimates worth considering assume some probable relationship between numbers and means of support, each set of data serving to some extent as a check upon the other.

Thus the physical and demographic effects of the conquest gave the French a freedom in Algeria which they did not have later in Tunisia or Morocco, where the transitions were smoother. "Censuses" perhaps even less worthy of the name than the early ones in Algeria definitely point to an increase in the Tunisian population between 1830 and 1870. If we apply the ratio 37:100, roughly that of our time between Tunisia and Algeria, to the 1844 Tunisian figure 950,000, we get 2.6 million as a probable pre-conquest figure for Algeria, which is approximately what Pearl's deductions from the general evidence imply. However, to be conservative, let us take his 2.2 million, which is about the lowest figure which will enable us to keep the French "censuses" instead of discarding them altogether. Thus we get about 850,000 for Tunisia to go with the pre-conquest figure for Algeria. Allowing the same figure for Morocco as for Algeria, though it may be low, we get an 1830 population of 5-1/4 million for all French North Africa. This is roughly half the number that E. F. Gautier, in his Siècles Obscure du Maghreb, set down as probable for the population of North Africa on the eve of the great nomadic invasions of the eleventh century.

These comments on pre-intervention North Africa are made because the libraries and the air are so full of statements un-

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with the first so-called "census" of 1856, but much higher than those usually given in the French colonial literature. A truly vast monographic literature on colonization in North Africa is condensed, in many cases by the authors, in four stocky volumes of proceedings and documents, Congrès de la Colonisation Rurale, Algiers, 1930 (distributed by Comité de l'Afrique Française, Paris, 1760 of 2162 pp. on these three countries). The present paper is a result of a trip of roughly a year in North Africa in 1950-51, financed in part by an Area Grant from the Social Science Research Council and the Bureau of Economic and Business Research, University of California.

supported by any evidence or explanation about the supposed wilderness which the French found. The region was not well cultivated as compared with most of western Europe, but was a large exporter of cereals. Recall that the quarrel leading to the invasion of Algeria began with the vain insistence of the Dey or Regent that France pay him for large grain shipments. The country was not well organized politically by European standards even of 1830, but it is foolish or disingenuous to state that there was no central government. There was none for some time after the French expedition which took Algiers expelled the nominally Turkish Regent, together with his experienced bureaucracy and disciplined forces, emptied a rich treasury, let soldiers kindle fires with the archives, and made no serious move to shift the allegiance of Algerian regional officials to France.

Nine years of confusion, bungling and largely senseless raids were not entirely due to the ignorance and indifference of the high command in the critical early months. True, it showed no interest in the rather delicate balance which the "Turks" had maintained between Algerian military and religious aristocracies. The coastal cities, including Algiers, had used small plains inland but nearby as food and defense peripheries. The populations were for the most part transhumants with traditional homes in desert fringes and mountains, whence they departed as promptly as possible after harvest to escape the malaria associated with stagnant water after the rains had ceased. French people who bought the farms speculatively, or acquired them through the French authorities during the total war of 1839-1847, insisted upon remaining. They died like flies during years while drainage or better drainage for the marshier spots was being provided. It was a serious blunder for aliens and heretics to take over the pious-foundation lands (habous), used to support Moslem worship, charities and education. The resulting purse-string control of Mohammedan institutions has never ceased to be a very sore point with the Algerians.

Probably more significant is the fact that the Restoration Monarchy which fathered the attack on Algiers collapsed in one of France's periodic revolutions within the month of capture. The July Monarchy which succeeded it was weak and preoccupied at home, allowing its ostensible servants in Algeria to engage in frenzied quarrels and wild projects. Generals who made treaties with Abd-el-Kader did not realize that the old balance was gone (or that it had existed) and that he led a religious aristocracy which had gathered most of the prestige in the presence of a dangerous but vacillating force of alien infidels. In 1841, with an avoidable war well under way, the French sought allies among the great Algerian military notables, adding the ferocity of civil strife to a holy war.

At the same time they went overboard for "official colonization." By this is meant chiefly the small- to medium-scale rural settlement of Europeans in compact village communities. The aim was to get as large and well-distributed a French population as possible into what was now definitely a colony, and thus to hold the country. This policy, suspended momentarily from time to time but followed in the main with great industry and conviction, was to make a very serious difference between Algieria and the adjoining countries. It was related to, and facilitated by, the political decapitation of Algeria mentioned above.

Within two months after the surrender of Abd-el-Kader at the end of 1847, France had another revolution, overturning the Monarchy and establishing the wobbly, short-lived Second Republic. Napoleon III, who followed, could not make up his mind completely enough to carry out any of his shifting notions about Algeria. He sided with military officers of the Arab Bureaus who wished to protect native society and property from the voracious colon or planter class, the speculators, the merchants and a civil bureaucracy highly sensitive to the wishes of these European immigrants. However, he did not firmly support the Bureaus or make any serious attempt to install the "Arab Kingdom" of which he vaguely spoke and wrote. On the other hand, he secured vast landed concessions in Algeria for business friends who agreed to settle Europeans and construct public works but did little of either before they got their obligations waived. He did momentarily stop the compression of tribal groups into fractions of their land (cantonnement) and suspend the "official colonization" of European small fry in villages for which native lands had to be expropriated. On balance he probably loosened the native hold on the land out of enthusiasm for individual titles. The reaction against the army which was defeated by the Germans in 1870 undid everything its Arab Bureaus had done for the native Algerians.

Again in 1870-1871, a political upheaval in France, this time complicated by a lost French war, hit Algerians with peculiar force. The European minority in Algeria, already around 11.5 per cent of the total population, was momentarily united against the military and out for easier acquisition of land. After mild setbacks, the will of this minority was accomplished. Algerian Jews became Frenchmen, and therefore Europeans, by a stroke of the legislative pen. A land law of 1873 made it possible for a European speculator to break up a collective Algerian property by buying one minor share and demanding the sale of the whole. By a stroke of luck, a Kabyle rising immediately after the Franco-Prussian war made it possible to confiscate 1,250,000 acres of this people's best lands, adding them to a domain which grants had reduced to 500,000 acres. Thus, Alsatians and Lorrainers who wished to escape German rule were provided for, leaving a handsome amount for the general resumption of "official colonization." The Kabyles who might have had grounds for questioning the land seizure were conveniently dead, for the most part, on battlefields or, in villages, surrounded and obliterated.

The main point above is that Algeria vegetated during the forty years before the Third French Republic, but that this period shaped events to come. A much larger percentage of Europeans than France was able later to introduce into Tunisia or Morocco was firmly installed. By a more single-minded pursuit of the old "official colonization" policy, the Third Republic was able to get a truly fabulous percentage of the better lands into possession of the European minority. Roads and other works begun on a large scale by the soldiery as military necessities during the conquest were to bear their real fruits much later, after a "money crop" of wine had been provided around 1880 by the phylloxera root infestation which heavily damaged the vineyards of France.

As expressed by the censuses, the maximum percentage of Europeans in Algeria was to be 13.7 in 1926, followed by a decline to 11.4 in 1946. Tunisia had only 8.2 per cent at the

1936 high point, decreasing to 7.4 per cent in 1946. Dubious Moroccan "census" figures of 1947 (based on ration cards) indicate roughly 4 per cent of Europeans. This might be low, as the computers have insisted, and in any case it can hardly be the maximum. The problem is one of net immigration from Europe, which can increase the European percentage by being large enough to more than compensate for the higher rate of natural increase in the native Moroccan populations. This it has certainly been since 1947, averaging over 34,000 per year for 1948-1951 inclusive. Note that this is over 10 per cent of the 325,000 Europeans reported as in French Morocco in 1947, and is vastly more than enough to lift the European percentage, given the highest possible Moroccan natural increase and making no allowance for an estimated European natural increase of more than 400 a year.

In a nutshell, a ruling and owning European minority which did not exist in 1830 was about 7.5 per cent of the total population of French North Africa by 1948, largest but shrinking in Algeria, next largest and also shrinking in Tunisia, smallest and still growing in Morocco. A total population roughly estimated above (guessed, if you like, but with respect for possibilities and consistencies) at 5.25 million in 1830 was still uncertain but more reliably estimated at 20.5 million in 1946-1948 (censuses in three different years). My 7.5 per cent is this total divided into the supposed 1.54 million total for Europeans. Recent trends, as indicated by the censuses, suggest that the percentage increase in Morocco might make up for the percentage decreases in Algeria and Tunisia for some time.

Comparisons of European and native landholdings in North Africa run at once into the problem of the qualities of the land in question. Largely because of a long and bitter but successful conquest from the sea, which is the side of the better-watered lands, European holdings in Algeria are on the average vastly better than native ones in quality. This is conceded in substantially the whole literature which faces the problem, including practical guides to agriculture. The superiority of European-owned lands is less striking in Tunisia, where "official colonization" was insignificant until after the first world war. However, anyone familiar with the green quadrangle of northern Tunisia has been struck by the rich European properties there stretching mile upon mile.

Most of the European latifundia in French Morocco are in the valleys, plains and low plateaus of the northern and best third of the country. As in Algeria and Tunisia, the cream of lands made irrigable at public expense has been turned over to Europeans. One large irrigation development on the tribal lands of the Beni Amir and Beni Moussa near Kasba Tadla left the people in place, but they were given quite insufficient training for the radical shift from herding to irrigated farming, and charged ten times as much for water as French centers of colonization. Professor Dumont, who visited the area, repeatedly points out many technical mistakes. These lands are not legally transferable to Europeans, who have been clamoring for admission into the area. Beginning in 1947, an "Office" which is the State under another name, and hence controlled by the Protectorate, began buying plots of this land. Soon it was farming its purchases, and now it has announced its right and intention to settle Europeans. Some enclaves were bought by Europeans long ago, before this was declared illegal, but soon abandoned as unprofitable. Now that a public irrigation system has made the land

valuable, the European owners are returning. In reverse situations, there has never been the slightest hesitation about expropriating native parcels within European centers of colonization.

The thing that strikes the traveler in Morocco about European holdings is that they are in relatively level and stone-free areas where the characteristic dry-farming supplemented by irrigation, as water permits, is feasible on a fairly large scale. Rural Morocco becomes more predominantly native as one moves southward, especially into regions of small, sloping and stony fields. These are worked mainly with wooden plows and light animals. Some experts advise against steel plows in this sort of ground, and some think that removal of the thousands of stones per acre would greatly accelerate erosion. Undoubtedly much land now cultivated should be used for pasture only, but this problem is far more acute in Algeria.

Partly to avoid the distortions arising from differences in quality, Professor Dresch has compared areas of what he calls "really cultivated" land as distinct from marginal and submarginal ones which produce poor crops occasionally. Of the first or undoubtedly useful category, Europeans own roughly 44 per cent in Algeria, 22 per cent in Tunisia and 7 per cent in Morocco. This may seem fair enough unless we note that there are 29 natives per European in rural Algeria, 48 in rural Tunisia, and 330 in rural Morocco. Moreover, intensive cultivation, with vineyards, citrus groves and market gardens leading, yields the "money crops." Europeans own nearly all of these remunerative lands.

About three-fourths of the native holdings in Algeria are microfundia -- classified as "under 10 hectares" (25 acres, but averaging 4.7 hectares or 11.6 acres). This is very little land in the dry back country or on the rocky slopes which abound in the Atlas mountain region. Particularly in Algeria, the presence of an entirely landless majority of rural Moslems makes average sizes of holdings dubiously meaningful. Most of these people, and many in the above microfundia group with too little land to yield even an Algerian living, make up the 60 per cent of rural Moslem families in Algeria rated by Chevalier as destitute. Note that 60 per cent of the rural group is nearly half of all Moslems in Algeria, and that there is enough destitution in the towns to carry the percentage far above 50. Current statistics show the average size of European holdings in Algeria to be eight times the native average, as against seven times around 1930, but I suspect that we should put in almost as many "zero holdings" as there are landless rural families, which would radically change the ratio. Tunisian native holdings average about a tenth the size of European ones, and the similar ratio for Morocco seems still to be about one to nineteen, as it was when I was preparing my 1937 book on that country.

In Tunisia and Morocco, the protectorate administrations made little use of the Algerian "official colonization" device until after the first World War. Some large grants were made in southern Tunisia, both to land companies and to private individuals, but this was no way to populate the country with Frenchmen. The protectorate administration in Morocco made a few official grants in 1916-18, but there were none less than 375 acres -- anything under that was called "small." The total was only 19,000 acres. It is hard to see why large concessions

were made in these countries after experience with them in Algeria which will be briefly discussed later.

Although the French had practically written themselves blank checks in the protectorate treaties, they were cautious in countries which still had some international status of their own, and they were more or less bound by old rights of third countries. Native political facades were valuable as excuses for the absolutism of the protectorate authorities. The introduction of Torrens-type systems of land registration (from 1885-86 in Tunisia, 1913-15 in Morocco) made it possible to clear titles by publication and to place land under French jurisdiction.

Besides regularizing purchases of land, the protectorate in Tunisia gradually made pious-foundation properties subject to lease. Perpetual leases of the supposedly inalienable lands became general, then compulsory and convertible into freely transferable private property. In Morocco, where the Sultan is the head of the Malekite rite of Islam, alienation of such lands was extremely difficult, but the significance of the income declined as did all income, and as the needs of worship, charity and education increased. With purchases and perpetual leases fairly easy in Tunisia, the French authorities were disinclined to press colonization, though the number of relatively small Italian holdings, and hence of Italians, was disquieting, and the big French estates did little for French population. As Pierre Berthault put it in 1935, "the imperial goal of colonization was therefore not attained." "A nation," he continued, speaking to the Imperial Economic Conference, "is not truly master of a country until its nationals are implanted alongside the natives, and are harmoniously distributed over the whole of the territory." (2) Augustin Bernard wrote in the introduction to the four volumes issued by the 1930 Congrès de Colonisation Rurale: "We shall lose North Africa, as we lost Canada, if we do not populate it."

"Official colonization" was practiced for about twenty years in Tunisia and Morocco, to the eve of the second world war. Then it practically stopped. There was too much resentment among Tunisians and Moroccans against the practice of using the sovereign power and the credit of their countries to put their land into the hands of aliens. The rulers were no longer complete puppets, and were getting the disconcerting habit of seeing their supposed subjects without the foreign guardians and tutors present. Mainly during twenty years after the first World War, 986,000 acres in Tunisia had become French private property by the "official colonization" route, slightly exceeding the 916,000 acres privately acquired from the beginning. In Morocco during roughly the same period, 680,000 acres were taken by "official colonization," as compared with 1.4 million, or twice as much, privately acquired altogether -- mainly since 1912. Despois, who gives these figures, puts the officially settled surface in Algeria at 4.2 million acres, as against 2.5 million private. It is interesting to note that the figure for the "official" category was the same in 1949 as Berthault's in 1935, but that the acquisitions by private means had continued, increasing the total from 1.7 million to 2.47 million acres, or roughly 45 per cent.

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(2) La Quinzaine Coloniale, March 10, 1935.

Even while "official colonization" was still booming, the contrast between achievement and waste-pile was startling. There was always a tendency for the smaller holders, as soon as they got full title, to sell out and move cityward if not back to Europe. In the North African cities, these and other Europeans took the more profitable places in commerce, finance, industry, the learned professions and not least the bureaucracy. Natives followed, largely as cheap labor, partly drawn, partly pushed as rural population increased, as good undeveloped land became scarcer, big European holdings turning former proprietors into proletarians or share-croppers, and mechanization reducing the need for labor.

The outstanding peculiarity of a temperate-zone plural society stems from the fact that the ruling and owning alien minority finds it possible actually to settle, remaining generation after generation. Hence to the property questions which arise in a tropical dependency when it reaches the point of self-rule is added the issue of what to do about a fair sized group of resident citizens of the imperial country. The French colonialists who planned to make the severance of North Africa difficult by introducing a strong though small European minority may not have understood all the reasons why they were to be so successful. At least some of them saw the problem of this minority's influence in France because of close business ties and a balance of power in French politics so delicate that any Government could be intimidated into the withdrawal of a proposal of significant reforms for North Africa.

The Carrying Capacity of the Land. A quarter-century ago, a flood of literature on North Africa was grieving about the shortage of labor and wondering what to do about surplus grain, world prices for which would not cover the cost of production. Now the region is dubiously self-supporting in cereals, with some excess from good crops and some shortage after poor ones. Much of the working force is unemployed, partially or uneconomically employed, or, as in the case of the Kabyles of Algeria, migrating to France in order to keep from starving. The size of the native population and its rate of growth are already causing great alarm. The rapid increase of the French population in Morocco is of concern only to the North Africans. French technical and planning literature has not taken it into account, nor has it considered another important factor, namely, expectations of economic and social progress pointed up by the United Nations Charter but as yet unfulfilled. The effort to bridge the gulf between European and native standards of living puts as much pressure on resources as does the increasing population.

Professor Dumont has noted that according to official statistics the cereal areas in Algeria increased from 5.2 million acres in 1872 to 8.4 million in 1940, the part cultivated by Moslems rising from 4.9 million in 1872 to 6.9 million in 1938. The native sown area was a tenth less in 1948 than in 1872, though the Moslem population had so increased that the sown area per head was off nearly two-thirds from that of 1872. The total yearly grain output in Algeria averaged highest in 1901-1914. It was about half as much per Moslem on the eve of the second World War as in 1872. Quantities of some other principal foodstuffs have declined absolutely since 1872, practically all per capita except a few cultivated intensively by Europeans for export and for European consumption in Algeria. (3)

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(3) Figures largely from Dumont's report to the "Monnet Plan"

Food raised per Moslem in Tunisia fell later than in Algeria but to about the same level, grain per head being about 7 bushels per year in each case. Although this fact has been concealed, and even denied, North African Moslems have almost Oriental percentages of vegetal materials, particularly cereals, in their diets. The animal-vegetal ratios over time can be estimated only very roughly from fragmentary data, but have evidently fallen as population increased and pasturable areas were plowed up. As usual, Algeria has fared the worst. An absolute decrease in animals has signified a sharp decline in meat supply per person for a growing population. A craving for sugar by North Africans is unexplained and probably due to some deficiency. Moroccans consume the most sugar, but resources per person are evidently greatest there -- that is also the obvious explanation of the heavy European immigration. A revealing fact is the very high percentage of income spent for food by most Moslem families according to an official survey published in the Bulletin Économique et Social de la Tunisie, beginning in the July issue, 1952. For the city of Tunis, where conditions were much the best, only a third of the families checked were able to get food expenditures down to two-thirds of total income. In the other two-thirds of the families, many spent practically 100 per cent of their income for food. Fragmentary studies bearing on the problem in Morocco suggest less pressure upon the food resources than in the other two countries, but the data are mainly about employed people in the cities. They tell us nothing about the enormous number of people one sees in the country, scratching over stony ground with wooden plows, using camels and donkeys in the hope of growing more than the equivalent of the seed.

Two decades of "official colonization" in the protectorates, with a depression as a common denominator, brought the squeeze on rural native population almost to Algerian pressures. To the middle thirties, the swarming to cities of people who slept in doorways, under bridges, in "Moorish cafés" or in bidonvilles (literally "tin-canvilles," referring to clustered hovels made of tin cans, discarded boxes, shreds of old paper roofing and the like) which were making their chaotic beginnings, was attributed to the depression, and in Morocco to the pacification, which created thousands of orphans who wandered homeless over the country. By the outbreak of war in 1939, a faint dawn of recognition that something more was happening had tinted the thoughts of French officialdom in Morocco. To the last time I saw them in Algeria, in 1951, the bidonvilles there were practically untouched by the French authorities (who alone have the power and resources) except to have the police watch them and to prevent any improvements (water, gas, electric or sewer connections or the use of brick or cement) which might force official recognition of their existence. One in the middle of Algiers was freely said to contain 60,000 people. By crudely estimating the dimensions and sampling for density, I decided that

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and from his chapter in Industrialisation de l'Afrique du Nord, checked with official statistics in all cases of doubt. Acre figures are hectare figures multiplied by 2.47. The bushel figures are quintals at 220 lbs. divided by 60, then rounded slightly downward because cereals other than wheat weigh less than 60 lbs. per bushel. Thus my figures are closely approximate, but precise conversions would not be feasible.

there were probably about half that number. In Constantine, a steep slope from the Hotel Transatlantique down to the railroad yards was thickly occupied by what looked like rabbit burrows back under the dirt.

Some of the bidonville population is regularly employed but can find no other housing. Much of it lives by odd jobs, on incredibly meager pensions, disability allowances, and the like, or in wholly mysterious ways. In Tunisia, a shade more has been done, but the movement is frankly out of control, the authorities not daring to make slight improvements which would make room for more uprooted people. In Morocco, orderly lay-outs have been attempted, sewage disposal and water spigots in the mud "streets" have been provided in some agglomerations, and in the largest bidonvilles where industrial employment is available there are some regular plans to progress from improvised hovels to grass huts and on up to long rows of plaster family cells called "houses." The "native quarters" (medinas, kasbas) of the cities have physically worse living conditions than the bidonvilles, people putting up with more crowding in order to be closer to possible work.

Any candid outsider who has watched these countries, on the ground and in the literature, in pre-depression, depression, war and postwar times, must suspect that Tunisia and Morocco exploded because they still could. Algeria has a six-layer police, an amazingly efficient system of "prefabricated" (the French term) elections and an odd sort of second-grade citizenship for the vast majority, too intricate to describe here. Economy is always political to some extent. The owning and ruling minorities in the French colonial empire, and their contacts in France, defeated a draft constitution in 1946 which would have made "association" closer to equal partnership than to subjection -- even containing seeds of autonomy in the Anglo-Saxon sense. A weasel-worded compromise, with generalities which seemed liberal but without any specific guarantees or program, squeaked through because both the unreconstructed colonialists and the people who took the declarations of 1941-1945 seriously were willing to gamble that the course of events would be with them. In 1947, Algeria got a new version of the Government-General. The country is "an integral part of France" in the same sense that the Portuguese colonies are integral parts of Portugal.

Tunisia and Morocco were to be "associated states" in a "French Union," but admitted on terms written by protectorate administrations sensitive only to the French minorities and responsible only to the Foreign Ministry in Paris. When the sovereigns balked at what definitely meant a freeze into colonial status for all the future, great pressure was brought to bear. When the majorities sided with the sovereigns, repressive measures were taken. Attempts to get the issue before the United Nations led to resolutions urging the wolf and the lambs to negotiate. To the moment of writing, France is standing upon protectorate treaties "imposed by force" and "keeping the reigning dynasties on their thrones" but "depriving them of actual power." (4)

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(4) Ch.-A. Julien, articles in International Affairs (London) October, 1950, and in Foreign Affairs (New York) April, 1951. He is Professor of Colonial History in the University of Paris.

The issue in North Africa is at bottom economic, getting into politics because a small and highly privileged minority can maintain a position established by military and political intervention only by real military and political control. A whiff of nationalism is worth a jail sentence or exile to a Moslem. The Algerian party led by Ferhat Abbas, and wishing to cooperate on more equal terms, is tolerated most of the time, but its weekly newspaper is crippled by enormous fines for any statement at all disagreeable to the European-controlled administration of Algeria. Abbas is a member of the powerless Algerian Assembly, but not allowed to represent the Algerians who elect him because he is a pharmacist, and anybody in so learned a profession belongs by definition to the separate "college" of Europeans and their handful of Beni Oui-Oui (literally members of the "Yes-Yes Tribe"). Usually he is under indictment for some supposedly anti-French utterance. He is a mild and affable man, who speaks excellent French, sincerely wants to cooperate, and lacks the amazing magnetism which has led Messali Hadj, leader of the other Algerian party which prefers independence to unequal partnership, to spend most of his adult life in jail, house arrest or exile.

There are laws on labor conditions and social security in Algeria which read well enough, but are not administered as they read. In 1951, the minimum hourly wage was 60 francs (under 20 cents), and newspapers reported that even Algerian government employes received less. We were guests for some time in the apartment of a French citizen. When a woman to do the housework was wanted, the lady had one sent from the country by relatives. This servant got a sixth of the minimum wage, slept on the kitchen floor, ate scraps including coffee from grounds left by Europeans, and was viewed with mild amazement when she had epileptic fits. These fits were merely spells to the people whose momentary servant she was, nor did they concern themselves, except for the annoyance, with the fact that in order to see she had to have a relative in town treat her trachoma with tweezers.

Public offices, such as housing authorities, are staffed largely by Frenchmen, and notices and announcements printed in French, so that it is difficult, if not impossible, for Moslems who read only Arabic to find out what their legal rights are. In Tunisia, Tunisian trade unions endeavor to see that wage regulations -- also 60 francs an hour for common labor -- are observed. Moroccans are not permitted to form labor unions, and thus the minimum wage in Casablanca was only recently raised to 376 francs a day, a little over a dollar. At the same time, lamb and beef were selling for around 400 francs or $1.20 a pound.

The extent to which the big coastal towns are parasitic is a question which can be only suggested here. There is relatively little manufacturing. The sizes of Casablanca and Rabat (with nearly two-thirds of the European population in French Morocco), of Oran, of Algiers and of Tunis, seem wholly incommensurate with necessary or useful functions such as commerce, finance and political administration performed for the countries. These cities are strategically placed to concentrate the flow of products into and out of the countries and to take their toll from what passes. This type of problem occurs in many parts of the world, but has struck me as peculiarly obvious in these temperate-zone plural societies where the concentration of the privileged group and the anxious swarming of the unprivileged group

beats upon the senses which have not been numbed by too long residence.

Constantine, an inland city of over 120,000 in eastern Algeria, is a railroad center and also a commercial center for big farm and forest concessions. A beautiful place a quarter-century ago, it is now an almost smothered nucleus of slums which are hardly even bidonvilles, inhabited mainly by Kabyles. Recall that the Kabyles lost 1.25 million acres of their best lands in 1872. (5)

Sétif, in a fabulous "granary" plateau since ancient times, is a half strangled and dreary company town of 50,000 (five-sixths native Algerians). It was in this region that Napoleon III conceded 50,000 acres to a group of Swiss banker friends organized as the Société Genevoise. This and his other two largest farming concessions, 60,000 acres near Oran to a Société de l'Habra et de la Macta and 250,000 acres scattered over the Department of Constantine to a Société Générale Algérienne, were made on the theory that Europeans would be settled, and public works constructed, by efficient private enterprise without expense to the French Treasury or the annoyance of public administration. Such conditions were in the grants, but the companies got themselves released from them before doing much about settlement or public works, henceforth treating the land purely as profit-making property. With less obligation, quickly forgiven, thirty beneficiaries got 400,000 acres of Algerian forests.

When the writer visited the Swiss concession in 1927, it was operated mainly by poor and discontented native sharecroppers, at large profit to the company, but the gains went to

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(5) They are the stock example of the so-called "Berbers" in a North African society which is all Arabo-Berber or Berber more or less modified. If "Islamized is half Arabized," as the saying runs, all North Africa is much more than half Arabized. All but a very small fraction of the population speaks Arabic, but some groups use Hamitic or "Berber" dialects at home. Professor G.-H. Bousquet of the University of Algiers, whose specialty is Islamic institutions, ridicules as a cult the stage Berber formalized by Hanotaux and Letourneux in 1857, before the French had made serious contacts with the Kabyles. He insists that there is as much difference between Arab tribes in the heart of Arabia as between "Arabs" and "Berbers" in North Africa, and notes that Hanotaux and Letourneux proceeded by asking questions about marriage, land titles and so on, recording supposed contrasts with an absurdly formalized version of Arab institutions. W. Marçais, arabisant and academician, says that North Africans are "essentially Berber," and that any attempt to divide them into Arabs and Berbers is "arbitrary and without foundation." Nevertheless the Berber cult or myth has been widely exploited as propaganda aimed at dividing and ruling in North Africa. Marçais quoted from P. Hubac, Tunisie, Paris, 1948, p. 35. Bousquet on the "cult" in Revue de la Méditerranée, July-August, 1950, pp. 441-454.

Switzerland without significant benefits to Algerians, Algeria or France. Sétif has been a chronic sore spot socially and politically. The biggest concession was reorganized in 1877 as the Compagnie (not Société) Algérienne. Its history is monotonously like that of the Genevoise -- a minor fraction cultivated directly or leased to Europeans, but most of the land farmed by native sharecroppers.

Questions as to which groups, from the ancients on, have done what damage to North Africa concern us only for any light they may shed on problems of what to do or avoid with what remains. Some faults of ancient irrigation which did damage were corrected, and others are known. Centuries of internal disorder and of contests between Romans, Vandals, Byzantines and early Moslem invaders obviously did much harm, some of it permanent. Neither the Roman scheme of insulating off desert and mountain peoples nor the Arab scheme of getting along without fortified frontiers endured. Damage was done by the invading Hilalian nomads of the eleventh century and their flocks, especially in southern Tunisia and southeastern Algeria where fierce resistance diverted them into the watersheds.

Some agronomists and geographers think that most of the damage has occurred during French control, and is less a question of area than of location in the best parts of the region. Professor Dresch notes that Algerian forests have diminished by 2.5 million acres since 1830, and not because of nomads or their flocks. Plowing and deforestation have produced great floods even in Morocco, taken over only in 1912. Much of Sefrou was washed away in 1950, and Tebessa in Algeria was wrecked again in 1952, after similar previous disasters. The pressure of native and of much heavier consuming European population has produced crowding, the plowing up of hillsides and extension out into the desert fringe where the removal of cover soon destroys even the pasturage value of the land.

The services called "defense and restoration of the soil" are aimed principally at effects of plowing and of a plowing society, and so far they are ridiculously inadequate. In Algeria particularly, the traveler sees almost innumerable examples of native and European plowing up and down slopes with a grade well over 10 per cent. Professor Dumont stirred up much argument in 1949 by stating that there were 250 acres less arable land and 330 more Moslem inhabitants in Algeria per day. Much of the damage is definitive. The tops of the characteristic rolling hills are often eroded down to rock, the nakedness extending down the sides to various distances.

Professor Dumont's report to the "Monnet Plan" had a limited circulation in mimeograph, and parts of it were published in little-read technical journals. His paper read in the Centre d'Études de Politique Étrangère was published only in 1952, in the Industrialisation collection mentioned several times above. I read the manuscript and discussed it with him in June 1951, and he gave me a copy of the practically suppressed report. The administrations in the three North African countries were divided as to the safe and proper course to set, but the old school wanted to build huge storage dams, let private French enterprise open up land, and work harder at the "Peasantry" movements, cooperative in nature and heavily tutored by European staffs. These movements came very late and are both inadequate and paternalistic, but they do essential things such as making avail-

able credit, marketing facilities and better seed, breeding stock and implements. Fortunately for the administrators who had their way, gigantism and relatively simple acceleration also fitted the ideas of the Americans whose views about the purposes of Marshall Plan funds could not be flouted.

A very crude sketch of Dumont's position must suffice, and it seems necessary to point out things which he omitted partly to achieve simplicity. There is doubt that much more land can be put under cultivation in Algeria and Tunisia than should be taken out of cultivation there. I shall omit the grandiose scheme to use water now going to the Chergui shott or salt lake back of Oran except to remark that it will be important if it works and is developed rapidly enough. The critical problem everywhere is one of rate -- of finding resources as fast as population grows and as larger consumption per person for over nine-tenths of the population becomes necessary. These native Africans have observed the consumption of an alien ruling and owning minority for some time. They have gone through a war in which French prestige suffered first from defeat at home, then by a rescue which was highly visible in North Africa. Their temper and awareness are not what they were, and France still wants their force, against restive peoples in the Empire or Union and against other Europeans if necessary. An Apartheid policy may be feasible in South Africa, but surely it is not in North Africa -- the limits of repression must be observed.

In 1949, Dumont computed maximum rates at which new land, irrigated and unirrigated, could be made available. Incidentally, these suggested rates were much higher than the actual ones of the next three years. Taking various periods, particularly one of fifteen years, he noted that the increase in resources by all the significant means that have been envisaged would not take care of expected population growth alone, with no rise in levels of living. He concedes that French Morocco has some 5 million additional acres which could be cultivated, given time to develop them. Far from rating him as pessimistic, I should put him down as an optimist regarding both the ultimate possibilities of cultivation in North Africa and the feasible rate of embracing them.

The tendency of Fremch farmers and administrators in North Africa to make comparisons with California is not foolish, though some of the comparisons themselves are rather imaginative. Anyone familiar in some detail with the roughly similar types of landscape and of climate must be aware that vast uncultivated surfaces in California are superior to much of the cultivated land in North Africa. The cultivated area in California, according to the preliminary figures of the 1950 census, is a little over 11 million acres, with some 3.5 million in farms. This is less than a third of the figure for French Morocco, Algeria and Tunisia combined, or 38 million acres. However, the 38 million become half of less of that at once if the actually cropped area per year is wanted. The region is dry. About 45 per cent of the arable land can be counted as fallow and other deductions for failures after sowing, etc., are in order. The idle or fallow fraction is about a fifth in California. But the startling contrast is in irrigated land.

More than 50 per cent of California's cultivated 11.3 million acres are irrigated. Results of a quite thorough and competent three-year survey of California's water resources, pub-

lished in 1951, give a figure of almost exactly 6 million acres. (6) The 1950 census gives the figure of 6.4 million acres (rounded here), the difference being in the method of classifying land. Somewhat less than a million acres of irrigated land are claimed for the three North African countries combined. Definite and certainly feasible plans to bring the surface up to about 2.5 million acres are discussed without any precise reference to the time. Dumont and Despois mention an irrigable area of about 4 million acres, the former, with his usual clarity, stating the time. He thinks it could be accomplished in "two or three generations," or about the year 2,000. This raises the question of California's potential supply. The engineer who directed the California survey is very positive that 17 million acres are irrigable and in his judgment will be irrigated before the century is out. Agronomists with whom I discussed the problem were more cautious, and their views are doubtless the ones to compare with Dumont's. There seems to be no doubt that at least 12 million acres should be attainable in California as quickly as 4 million in North Africa.

With an allowance of 200 per cent for error, it seems fair enough to compare the areas in terms of irrigation possibilities and to say that California is agriculturally at least equal to the three North African countries combined. Note that the three already have twice the population of California, a small fraction of its equipment and skills, and a plural society which is certainly a handicap in the diffusion of skills. The extent to which North Africa has borrowed California plant varieties, equipment and methods, including the complex methods of surveying underground water, makes the comparison better than there is space here to show.

Some of the borrowings are more necessary and safer in California than in their transplanted environment. The big storage dam is unavoidable to the extent that water exists in the north of California, irrigable surfaces for it only in the south. Moreover, the rate of silting is not so high in California. Many North African dams have a probable usefulness of only about fifty years, and it would be hard to find alternatives once they have completely silted up. The Romans discovered, and our experts largely agree, that the safest way to store water is by diversion dams and other means of collecting it underground. Then it can be pumped, letting the water table sink in dry years to the extent that experience shows will permit restoration in wetter years. In this way it is also possible to go slow. To build a colossal dam in the midst of a nomadic-herding country is probably to dispossess the people because it takes so much time to convert them into irrigated farmers. It is also likely to entail so slow a development of water utilization that half the lifetime of the dam is gone before it is fully at work. One flaw in a plural society with a small alien group of directors and owners is that it is impossible to provide the necessary amount of competent supervision.

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(6) Water Resources of California. Bulletin No. 1, 1951. State Water Resources Board, Sacramento, 648 pp. The California volume of the 1950 agricultural census has not been published, but the global figures have been announced.

This sort of society has often shown a surprising competency during a period of crude beginnings. The temptation of the ruling group is to regard itself as the permanent command, the great majority as capable only of carrying out orders and perhaps not very good at it. With or without a date being set, the time of the apprenticeship runs out, whether the apprentice society has been taught anything or not. If it has not there is trouble, for the self-appointed high command is alien, after all, and either gets assimilated or wears out its welcome. The writer does not pretend or aspire to be a prophet, but he has been trying to suggest that the time for picking some desirable form of sweeping change in North Africa may well be short.

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A DESIGN FOR SOME EXPERIMENTS IN THE LIMITATION OF POPULATION GROWTH IN INDIA

The central idea. The birth rate and the death rate which are usually the same have become separated in India since the death rate has decreased appreciably while the birth rate has changed only negligibly. The result is an increase in India in population of around 5,000,000 a year. Since 85 per cent of the population live in rural villages where the average family farm is quite small, this increase in population has a depressing effect on the standard of living. It will require an additional 800,000 tons of grain each year to feed a year's increment of population. India is now importing about 5,000,000 tons of grain per year. Hence, it seems desirable that the birth rate and the death rate should be brought into balance again, by lowering the birth rate, rather than raising the death rate.

In the research, here under discussion, it is proposed to set up an experiment in villages to see what effect on the birth rate will result from a knowledge of the date of ovulation in women's menstrual cycle. This method of reducing the birth rate costs no money and requires no appliances or chemicals. Any other method of reducing the birth rate, that seems suitable to India's village population, can be used in this design. In the experimental village after ascertaining the birth rate for the previous year, information on this date-of-ovulation method will be given to each husband and each wife, and after 21 months the birth rate will again be taken to see whether it has declined, and, if so, by how much. At the same time, a control village, comparable to the experimental village, will be chosen and the birth rate ascertained as in the case of the experimental village, but no information will be given on how to avoid conception. After 21 months, the birth rate will again be taken and compared with the birth rate in the experimental village, which has received knowledge of birth control.

On choosing the Experimental Village. The experimental village, hereinafter called the EV, should not be of any unusual type, nor with any special eccentricities. It should not be too near a big city. It is not necessary that it be mathematically representative. In size, it is probably preferable that it be small, say from 500 to 1500 inhabitants.

On selecting the Control Village. The Control Village should be sufficiently distant from the EV that information on controlling conception given to the families in the EV will not be disseminated into the CV. Also, should there be much publicity in the newspapers or over the radio on birth control, the CV should be relatively free from such information. Ideally, the CV should be exactly the same as the EV except as regards ignorance or knowledge of the method of birth control. Such exactitude in comparisons is not practical. But similarities, roughly, in income, famine experience, type of crops, age, and castes are desirable. In any case, data on these items should be recorded for both the CV and the EV. Perhaps the CV should be somewhat larger, for then the comparisons can be made more exact by omissions in computing the birth rate of the CV, in say, age, caste, income, etc.

On ascertaining the birth rate. The births in a twelve-month or twenty-four-month period should be learned by personal inquiry about or from each married woman in the village. If the year were the calendar year, the recollection about the 12 months period would be more reliable than a 12 months period with a less commonly signalized beginning and ending. The nearest past calendar year could be chosen, but there may be in Indian custom a better marked period than the calendar year, as for instance, from Diwali to Diwali. In any case, the 12 months chosen should have a marking line easily remembered. It is very important that every birth should be recorded. It is much better to get the births for a 24 or 36 months period, for then there would be less danger of chance fluctuation. It is desirable to have as stable a base number of births as possible for so small a village. To collect the number of births for more than a year would mean getting also the number of married persons for the 24 or 36 months period. There should be some check to see whether the investigator has recorded every birth. A second investigator might check to see if he gets the same number as the first investigator. If each keeps the record of the names of the wives, then the two records can be kept against each other. With the name of the mother there should also be recorded her age and certain other information noted in the next paragraph.

Other information than births. Certain other information is desirable to interpret the birth rate and to facilitate comparisons with the control sample village. In order to collect this information, it is suggested that in column one of a sheet of paper there be entered the name of each husband and each wife in the village (or who lived in the village for over half of the period for which the data on number of births are collected), where the wife is or was under, say 45 or 50 years of age. In column two, record the age or estimated age of the wife. Where this can be done, in years, it should be done, as for instance, 23 years old. Where the age is unknown, it is suggested that the enumerator guess the age in five year and ten year age periods previously set up, as for instance from 10-15, 15-20, 20-25, 25-35, 35-45. In column three, should be recorded the name of the caste to which the couple belongs. As to income, it may be that this cannot be ascertained reliably; or, even if it can be obtained, it would be too troublesome to do so. In column four, enter a check mark for every child born during the preceding period as described above.

The information on birth control. The information to be given is on the date of ovulation and its variation. The most probable date of ovulation is the 14th day after the beginning of menstruation. The chances are about 1 in 4 that ovulation will take place on that day and about 1 in 5 that it will occur on the 13th day. On the 10th day after menstruation the chances of ovulation are about 1 in 20, and on the 17th day the chances are about 1 in 20. Before the 10th day and after the 17th day the chances of ovulation are very slight. The chances are about 4 out of 5 that ovulation will occur in a 5 day period, from the 11th through the 15th day after the beginning of menstruation. These data are based on the observation of many females. The chances of ovulation are shown in the following table.

Dates of Ovulation (Days numbered from 1st day of menstruation)	
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	9
10	48
11	107
12	157
13	217
14	224
15	104
16	65
17	42
18	9
19	6
20	3
21	6
22	0
23	0
24	3
25	0
26	0
27	0
28	0
29	0
.	.
.	.
.	.
.	.
	1000

For any one female from 16 to 38 years of age the range is probably less; but since the length of any one woman's menstrual cycle will not be known in this experiment, the broader range for several presented above had better be used.

The question is how to impart this information to men and to women who are illiterate, probably not used to counting very much, have no calendar, who may not know how to take one-third of a number, but who do know what a week of 7 days is and who know the days of a week. The information should be so simple that it could spread by word of mouth from one person to another without the aid of any expert informant. The form and language can probably not be known without some preliminary trials. It is not only desirable that the information should be clear but it should also be not too indefinite as to period. It should also be so stated as not to offend or arouse the prejudices of religion or biases of custom. These points about giving offense can be learned from some preliminary trials.

It is highly desirable to make some preliminary trials in giving information on time of conception for the purpose of finding out the attitudes of men and women toward limiting the number of children and toward this method of birth control. A knowledge of such attitudes will facilitate making contacts and talking with the villagers about the rhythm method. No careful, exact, recording of attitudes statistically studied is needed, however; though it would, of course, be very nice to have such a study. It is thought that some preliminary trials by several different workers in some village not chosen as an EV or a CV should give the workers enough information on attitudes and resistances to enable them to be tactful in talking about the subject and giving the information. Indeed, a report on the attitudes found should be recorded.

A tentative suggested trial is the following. The informant says to a man or woman, "Did you know that if you want to have a baby, the chances are better that you will get one if you have intercourse about mid-way between the menstrual periods?" "Also, if you do not want to have a baby, the chances are you will not have one if you do not have intercourse during a period about half way between menstruations." (Note: In no case must this information be presented as sure. Always say the chances are ...., for one must safeguard against a failure being used to distrust and discard the use of this information.) The man or woman being interviewed is expected at this point to inquire how long this period is. In answer to this question it is suggested that the informant say a little longer than a week. To the question, how much longer, the answer is two days. Perhaps using the fingers of one hand may help. Then, if the person being interviewed does not ask, the informant should say that this period begins a little more than a week after the beginning day of menstruation, about two days more than a week after the beginning. Perhaps a stick marking a line on the ground showing the days of the beginning of menstruation and the fertile period would help to get the idea over. Some visual method of imparting this information might be tried, such as a colored card or string. But in no case should the visual method cost so much that it would be difficult for these visual aids to be furnished by the government in case this information should be distributed to the married couples of child-bearing age in 560,000 villages.

It is also desirable that the person being informed should repeat to the informant the information as to when the fertile period begins and when it ends. If not, then the informant should repeat the information to be sure it is understood.

The foregoing formulation is only a suggestion. A better way of imparting this information may be found by the informant after some experimental trials with different formulations. But eventually one method of telling will prove to be the best. This method should then be written down on a card or piece of paper, and the same method should be used on every person in the village who is informed. In case more than one village is recorded, then the same method of telling should be used for all villages.

In the design of this research the informant should present the information only, without any advice. There should be no implication or suggestion that the married couples ought to

have fewer children, that the health of the mother might be better if she had fewer children, or that they could give their children a better education if there were fewer. The information only, without propaganda, should be given. The educated people of the cities know about the date-of-ovulation method of birth control. Is there any reason why the uneducated people of the villages should be denied it? If they have this knowledge, then they can use it or not as they like. The experiment is to find out the effect on the birth rate if some or all make use of it, without urging.

A check should be entered on the records for every man and every woman who is informed.

The purpose of the experiment. The purpose of this experiment is not to find out anything about the fertile period, its length, its date of beginning, its variability or whether it is reliable. All this is already known, so there is no need to try to get information on it. The biology of menstruation and ovulation has been thoroughly studied, and there is nothing that this study can furnish on the physiology of ovulation and menstruation. It is also not to try to find out anything about Indian women's physiology as compared to the Western European or the American where this method has been tried out. It is practically certain that the menstruation and ovulation of Indian women is the same as women of other lands. If there should be any difference, it would be so slight as to be well within the practical errors of the experiment.

Hence this experiment does not need the advice of any biologist or physiologist. The wives or husbands are in no sense patients in need of a physician. No mechanical contraceptives are used, no chemicals. All that is required for the trial of the method is abstinence for a period of 8 or 9 days each month; which if it occurs will not injure the health of either the husband or the wife. Hence a physician is of no more importance for this experiment than a person of any other occupation.

A physician might make a very good field worker since men and women are accustomed to having physicians talk to them on intimate personal matters on which there may be reticence. So also a priest might make a good field worker. But neither physicians nor priests are available. A midwife might be used to talk to the women. But there is very little of a private nature to explain about the date-of-ovulation method; not nearly so much as when one is explaining contraceptives. From the foregoing discussion of the information to be imparted it can be objective, brief, and the personal and intimate can be avoided.

The study is also not concerned with the individual, and guaranteeing a particular woman or family against having any more children. Therefore personal supervision, extreme accuracy, and clinics are not needed for this experiment. This is not a "family planning" project and hence is not to be modelled after the urban clinics and urban family planning proposals, which are designed to bring health or happiness to particular families in need.

The purpose of the experiment is to see if the date-of-ovulation method will reduce the birth rate and hence lessen the increase of the population in India. It has been said in

a previous paragraph that we already know all about the date-of-ovulation method as to its biology and physiology and that it has already been demonstrated that it will decrease births if instructions are followed. It may be inquired, then, why make this experiment? The reason is that previous tests of the method have been made under supervision by literate men and women who use calendars and keep records.

The need of a study in the villages of India is then to test the method, on an uneducated population with very low incomes, without supervision. The experiment is not so much a test of the method as it is a test of the will power of the people. If an experiment is made under supervision and the wives periodically report to a supervisor, it is a poor test of will power. Furthermore, if there is good supervision it is not a good test on an illiterate and poor population, for the supervision overcomes somewhat the deficiencies of illiteracy and of poverty.

Efficiency of the Rhythm method. Experiments on birth control methods can be made for two purposes. One is to experiment with a method to determine its efficiency in preventing conception. The other is to experiment with the method to determine its efficiency in lowering the birth rate. The two are different. For instance, the efficiency of a foam tablet may be studied; and as a result it may be found that it will prevent conception x per cent of the time. But its efficiency in lowering the birth rate would still be unknown and it might be zero; for instance, if distributed to a population whose religion forbade its use.

The efficiency of nearly every method of birth control in preventing conception has already been studied and is known, including the efficiency of the rhythm method. There is no need of repeating these studies in India.

We also know something of the efficiency of some contraceptives in lowering the birth rate. But we do not know the efficiency of the rhythm method in lowering the birth rate in any country or community. The purpose of this proposed experiment is to find this out for India.

A necessary condition for an experiment in testing whether knowledge as to date of ovulation will lower the birth rate in India and, if so, by how much is that nothing should be used in the EV that cannot be used in a campaign of dissemination of the information in the 560,000 villages of India. In this experiment, therefore, no clinic is to be used, since clinics could not be placed in 560,000 villages. Similarly, the use of a physician is not desired, for physicians cannot be supplied to the 560,000 villages. So also no supervision is wanted in the experiment. The experiment would then be invalidated, for supervision cannot be supplied to all the villages. Similarly, if in a village volunteers were selected and these only were studied with reference to their use of the rhythm method the information would be of little value in getting any idea of its effectiveness on the birth rate.

In this study it is not necessary that all of the married couples avoid intercourse during a short period each month. If only a small percentage exercise the will power, the birth rate can be brought down to balance the death rate. Probably about

one wife in six under 45 years of age has a baby every year at the present time. If this ratio can be lowered to one in 8 or 9 then the birth rate will be brought down to equal the death rate.

Who should do the field work? Since physicians, midwives, health officers or social workers do not appear necessary as field workers, who should do the work? Of course, there are no objections to these workers. Indeed, they probably would do excellent jobs. Important as a qualification is tact and skill in making personal contacts and in talking easily to strangers. Another qualification is that the informant have some familiarity with the speech and folkways of villagers, or that he acquire this familiarity before undertaking the work. Any investigator chosen should be systematic, methodical, and consistent at keeping accurate records, and should, of course, have the necessary perseverance. It appears necessary that the field workers be both male and female.

The time interval allowed. It is recalled that the birth rates are to be ascertained at two different times -- the first before giving out birth-control information and the second afterward. The interval between them should be at least 9 months plus 12 months, to allow for births and for conceptions that occurred before birth-control information was given. However, on account of the desirability of choosing a 12 month period, for ascertaining the birth rate, which has an easily recalled starting and ending point, it seems desirable to wait 12 months plus 12 months or 24 months before taking the second birth rate.

The birth rate the second time. The investigator will have the names of the husbands and wives from whom the first births were taken. From this list should be removed all names of persons who have died and of all such widows and widowers and also of all those who have moved away from the village. The population will be two years older, and because of that increase in age there might be expected a slight drop in births. It is desirable to add to the list all new de facto married couples under 45 years of age who have moved into the village, provided they have been told about this method of birth control. The investigator should have visited the village from time to time to learn of new married couples and give them the birth control information.

The calculation of the birth rates. The total number of births divided by the total number of married women under 45 years old is the birth rate. The difference between the birth rate at the beginning and end of the study for the EV is what we want as a measure of the influence of this birth control information on the birth rate. The difference between the birth rates taken after the dissemination of birth control information for the EV and for the CV is the measure we want.

This comparison would be better if the age distribution of the EV and the CV were the same. But I doubt if the difference in the changes would be appreciably affected by any differences actually found in the age distributions of the EV and of the CV. For any one pair of villages the population in each age group will be too small to give stable age specific birth rates, hence standardizing out the age factor is not feasible for any one pair of villages. However, if several villages are studied with

the same method and the same statement of the date-of-ovulation, then the data for several villages can be added together and stable age specific birth rates can be obtained and the point can then be tested as to whether the comparison of the changes in the birth rate in the EV and the CV will be affected by the difference in the age distribution.

Perhaps more important than the differences in the age distribution between the EV and the CV is the difference in the caste distribution. Of course, the CV should be chosen, if possible, to have about the same caste distribution. If this is done reasonably well then there is no problem. But if there are differences in the caste distributions then perhaps if the castes can be added together to give only 2 or 3 groupings on, say, a "scale of poverty," then the standardization technique can be applied to give each village the same caste distribution, for the caste birth rates will probably be stable enough to use the standardization technique.

Size of sample. It is well known that values from small samples fluctuate around the true value. Thus if 12 dice are rolled there should appear 2 sixes. One in six is the true probability. But actually no sixes may appear or 8 sixes could be rolled from one roll of 12 dice (or 12 rolls of one die). Thus, the true proportion of sixes cannot well be told from so small a sample. So a small sample of the population will not give the true birth rate. It is possible, for instance, even if the rhythm method be effective to a degree in lowering the birth rate, that it might not be shown in a study of a single pair of small villages. The birth rate in the CV, for instance, might fall appreciably over the period due to the fluctuations of small numbers. Hence it is desirable that the first birth rate be made more stable by basing it on more than one year's experience. So more than one EV, with a population of say 1000, would not be large enough. For instance, if the true birth rate be 40 births per year per 1000 population (or the chances of a married woman under 45 having a child in any one year be about 1 in 6), and if, after birth control information is given, these rates be changed to 30 (and 1 in 8), then to show this difference the total population (including males and children) of the sample studied must be about 6000.

If the true crude birth rates were 38 without a knowledge of birth control and 25 after a knowledge of birth control, a population of, say, 3000 or slightly more would be required.

For a smaller decrease in the birth rate than 10 points, a larger population than 6000 would be needed, and the number can be calculated in advance for any assumed decrease in the birth rate.

Of course, it may be that the information on the date-of-ovulation given to an unsupervised rural population of India may not reduce the birth rate at all. It is to test this that this experiment is planned.

Since the typical village in India is probably around 1000 in population or less, obviously more than one village would be required, and since conditions differ in various parts of the country it is desirable to scatter the samples, avoiding famine areas.

As to the number of villages needed, if we assume a variation (standard deviation) in the crude birth rates of a sample of 5 experimental villages to be 5 per thousand of the general population then a decrease of less than 10 points in the crude birth rate (that is, .010) could be due to chance. In other words, for five villages a drop of more than 11 points, say from 40 to less than 29, would be needed to prove that the birth control information was effective. If the variation was more, say 7, then for five villages a drop in the mean crude birth rates of more than 15 points would prove that birth control was effective (and that the drop was not due to chance).

With these two variabilities (.005 and .007) and with the numbers of villages eleven, decreases in the birth rate of about 5 and 9 or more would prove that the drop was not due to chance, but due to the birth control information.

We therefore conclude that it would be the better wisdom to study at least 10 experimental villages, and, of course, ten control villages.

The amount of increase in the birth rate. It has been assumed that it is desirable that the birth rate should balance or equal the death rate (assuming no migration in and out of India). Though it would appear that if India had a population of 175 million instead of 350 million, the people would be better off as to per capita income and the material standard of living.' But any such extreme change in the population is not in the realm of reality in this era of history. So a more modest goal of a birth rate equaling the death rate -- the actual condition in India through most of its history -- has been set.

If the death rate in India is 30 and the birth rate is 40 then a decrease in the birth rate of 10 points is projected.

But the death rate is likely to decrease even more in the future (as has been the case in Ceylon) due to the reduction of diseases such as tuberculosis, malaria and certain childhood maladies. Indeed, the progress of health work in India is likely to be great with possibly a much lower death rate than now.

Incidentally, one wonders whether the health departments and health agencies should not feel a responsibility to reduce the birth rate, since they are responsible for reducing the death rate. Unless hospitals and health campaigns are accompanied by information on birth control and by propaganda for late marriages (although we do not know how effective such propaganda for late marriages would be), it may be argued that the continued low standard of living is due to the work of health agencies.

Parenthetically, with a lowered birth rate and a wider spacing of children, the health of the mother and of the children may be improved.

It seems, therefore, that a drop in the birth rate of more than 10 points is needed. This possibility raises the question of whether the dissemination of information of the date of ovulation should not also be accompanied by an attempt to persuade the villagers to try the method. This thought calls for another experiment to be described in the next paragraph.

Experiment Number Two

The proposed experiment number two is identical with the proposal for experiment number one set forth in the preceding paragraphs except that under experiment number two, the informants should not only impart the information on the date of ovulation as previously described but he or she should also urge the married couples to limit the number of their offspring. Thus in addition to information there is proposed a propaganda for the "rhythm" method of birth control.

The persuasion used. As to how best to urge the villagers to practice birth control, we can know better after a few trials on married couples in the villages. But in general the propaganda would presumably (a) set forth the advantages of having only a small number of children, and (b) urge them to try the rhythm method and to persist in it over the years and (c) not to discard it in case a conception occasionally occurs among those who try it.

As to the advantages of a limited number of children, most convincing probably are the economic advantages, as to more education and opportunities. There is also the possibility of having more food and better clothing. Furthermore, there are likely to be advantages to the health of the whole family, particularly of the mother and the young children. Something might also be said as to the amount of farm land that could be left to each child, if the number be small or large. The farmer may want the labor of his sons, and the mother the labor of daughters on the land and in the cottage. This point will need to be met. Perhaps the labor needs can be supplied by a smaller number of children. This possible advantage for a few years can be weighed against the long time advantages to the children.

On urging the use of the rhythm method the success of setting forth the advantages of a small family will, of course, be of importance. But in addition, it may be desirable to state that the couple must be particularly careful around the beginning date of the fertile period, and that as the months go by they must not become careless. Also since the custom is often that the husband commands and the wife obeys, special attention should be given to the husband. It would be quite a coup if the husband could be persuaded that the wife is taboo during the fertile period. But I suppose this is not possible.

There should also be a warning that even though a couple try to follow the method, a conception may still occur. This may be due to the fact that the method was not followed carefully or that there was some unusual variation in the wife's day of ovulation. It should be stated that should the method fail on rare occasions, it works most of the time. That even if there is a child born, the total number of children in a family will be less than there would be if the method is not followed.

The technique of this propaganda must be studied very carefully by the informant and worked out in advance with several trial cases in different villages. One must be careful not to offend, and it should be remembered that suggestions and persuasion are better than arguments. An informant should not be used who is prone to argument and who is not tactful or who offends easily.

It is clear that this experiment number two will take more time than will experiment number one. But it will be important to measure whether persuasion plus information is more effective than mere information; and, if so, by how much.

Experiments Numbers Three and Four

It is recalled that the big idea in these experiments is to develop a method that will be effective in reducing the birth rate of a population of say 300,000,000 who live in about 500,000 villages. To reach this population, a few clinics in the big cities is of little value. What is needed is a mass attack that will reach many millions of villagers. Obviously the method of dissemination must be very simple and fast to cover so big an area and to reach so many people. It is questionable whether experiment number one or experiment number two is as facile as is needed. Hence the proposal for a third experiment.

Contact only with leaders. This proposal is to give the information, or the information plus propaganda, not to each married couple in the village, but only to a small selected number, and ask them to spread the information to the married couples in the village. This selection might well be the five members of the panchyat, or panchyats, if there be more than one in the village. It is also possible that effective spread could be obtained by talking only to the patel or head man of the village. Or it might be desirable to make a contact with some important figure in each caste. It is possible that the barber and the barber's wife would be especially successful in passing along this information. These might be called together in one meeting, or in one meeting for each caste. The best selection should be worked out with someone who is very familiar with life in the villages, or with the charismatic leadership potential in the villages. It might vary in different parts of India. But the central idea is that only a very small number in each village need be informed, but asked to impart the information to others in the village.

The imparting of information as to when, in her monthly cycle, a woman ovulates and when she may conceive should be done in one of a pair of villages without any propaganda or persuasion. Merely give this information to the leaders and ask them to pass this information along to the married couples for them to make use of it or not as they choose. There would seem to be no objection to having knowledge and no gain in keeping people ignorant. This method may result in a very slight lowering of the birth rate.

For a possible greater lowering of the birth rate, the furnishing of this information on the date of ovulation in one of another pair of villages should be accompanied by persuasion, and the leaders with whom contact is made should be asked to try to persuade (with arguments previously discussed) their fellow villagers to make use of this information in limiting the number of children, with the advantages that follow for the children and for the family.

The purpose in experiments numbered three and four is to use a procedure which could be employed in a mass approach, at

very little cost and in a short time, to the whole village population of India.

For experiments numbered three and four, it would still be necessary to choose the same number of villages and controls as in experiments numbers one and two. It is possible that the only one set of CV's for the four different sets of EV's used in the four experiments would be needed. Such would be the case if conditions were relatively homogeneous; but if representativeness of the heterogeneity of India is considered then each EV should be matched with a CV. It would also be essential that an accurate birth rate be ascertained for each EV and each CV before making a contact with the panchyat or any selected leaders or groups in each village. After an interval of say 24 months, it would be necessary to measure the birth rate again for the EV and the CV.

It would be interesting to see how so limited a contact with each village would affect the birth rate. If there was an effect and it was appreciable on the birth rate, then national authorities could have confidence in proceeding with such a mass education about the date of ovulation.

Experiment Number Five

There is another study of a limited nature that might be worthwhile. It is an attempt to ascertain by a case study method of individual husbands and wives in a village why each did or did not use the date-of-ovulation method or why they used it a short time and abandoned it, or the occasion of their being careless in its use.

This method would give interesting information to the curious and to those who can see birth control only in terms of individual families rather than in terms of a population problem. Its practical value is clear for experiment number two. But to be of use in designing experiment number two, experiment number five should be carried out in advance which would take an additional two years, and therefore may not be advisable for this objective.

This method might also be of practical value in helping to plan a mass dissemination of knowledge on the date-of-ovulation. The national or provincial authorities could presumably plan a better technique of talking to village leaders if they had the knowledge that comes from study number five. It should be observed, however, that to carry out study number five, all that is needed is to choose one of the villages already studied in experiment number one or experiment number two and follow it up with the individual case histories. It is probably not essential that every husband and wife be questioned, though it is desirable. But a large number should be talked to.

Some skill is needed in tabulating the reasons for using or not using the method. The reasons will be many and different and some will be overlapping with others. The consultant would want to work with a statistician who is competent in dealing with "open-ended" answers and with classifying and analyzing overlapping material.

Concluding Remarks

To conduct all of these experiments some 30 experimental villages (more or less) would need to be studied and at least 10 control villages and possibly 20 more if the EV are selected from different parts of this sub-continent. The experiments would not be very expensive. Someone familiar with labor and wages in India could work out a budget. But even if more villages were required and the costs were greater than appear at first, it could be argued that the importance of the problem for India and the standard of living of its population would justify the expenditure of much larger sums, sums quite comparable to those being spent on irrigation and agricultural improvement. If the population grows faster than agricultural production, then the gain in increased agricultural production would be nullified by these additional new increments of population.

There is also the problem of personnel. There needs to be capable direction, assuming that the design is satisfactory. The design has been drawn by one who has not spent a great deal of time in the villages and some modification is to be expected. The individual field workers can probably be selected and trained without too much difficulty. In addition to the immediate direction, some consultants might be used as needed. As to whether an advisory committee should be set up depends upon the quality of the direction provided, and also on the need of consideration of public relations.

It will have been noted that these studies will require about two years time. There is therefore some urgency in not delaying their consideration. It will also be observed that the population problem in India has the characteristics of a crisis, since some 3 to 7 million tons of grain must be imported, since the national budget is running at a deficit, since the extension of agricultural improvement over the whole of India will be slow and since some 5,000,000 population are being added each year.

In view of the crisis aspect of India's population problem, it might properly be asked why wait two or three years until the results of these experiments can be assessed and put to use. Why, it may be urged, should not the date-of-ovulation method of population limitation be spread far and wide across the villages of India now? This question is a thoughtful one and ought to be considered. First, we do not know that the rhythm method will be followed by the rural population of India. These experiments are designed to answer that question. Furthermore, it is known to the experts that the biological basis of the method is sound, and that if followed carefully it is highly effective. But of course, public opinion in a democracy is not well informed of this fact. There will be those who insist that it will not work, or who will say that it will work only under a supervisor who helps in getting a husband and wife to try it, but that the mass of the people will never follow it, and that they will never exercise the self-control for that long a period each month.

It is to meet these objections that the foregoing designs have been drawn.

Also, should the authorities decide to disseminate birth control information to the whole of the rural population of India, from such experiments as those here set forth they will have the measurements on which to do some planning, provided the experiments show that an unsupervised, uneducated, low income, rural population will use it enough to reduce the birth rate. The measurements from these experiments ought to provide data which will be very useful in estimating the labor and the costs necessary to furnish this information to the villages. From these data planners can predict with confidence. They will not be shooting in the dark but will get results from their action programs which can be told in advance. These four different experiments might lead to four different drops in the birth rate. With this knowledge of four degrees of decrease possible, the authorities could choose the degree of drop they want and could budget the time and cost for obtaining the decrease they want.

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THE ROLE OF A SOCIAL SCIENCE ADVISOR TO A STEM MISSION

The United States is now heavily engaged in important developmental work affecting the economies of many nations of the world. We are dedicated to (1) the task of helping depressed and hard-pressed countries build up their internal strengths and (2) in ways which make clear our peaceful and friendly purpose.

The various "missions" we have established in many world capitals are thus confronted with a two-fold job, neither of which can be sacrificed for the sake of the other. It would be an easy venture indeed if the work could be counted done with the building of so many miles of highway, of so many dams built, of so many acres irrigated. But if we have learned anything during recent years with respect to international relations, it is that material accomplishments alone are of little significance unless they are woven into the life of the people and thus accepted into their own system of social organization.

To reach this goal is difficult indeed without careful analysis of how societies are organized and how they maintain themselves including a knowledge of social groups, both formal and informal, of the basic institutions of the family and those in the areas of religion, education, government, and economic life. Needed particularly in developmental programs within these broad fields of study is systematic knowledge of the class structure, the ways in which power and authority are structured, the processes of social interaction among individuals and groups, and the goals, aspirations, and norms or values around which social behavior is oriented.

To gain the insights into the character of a people that such investigations would yield involves work that obviously goes beyond the time available to technical personnel although certainly not beyond their interest. Busy administrators, concerned with keeping the threads of a complex mission activity in order, are likewise not in a position to conduct social research even if they were so inclined by training and temperament. There is clearly a place for a staff person trained in social research methods to aid in formulating economic development projects and whose work would be significant for the social sciences generally.

In order to examine more closely the role of a social scientist in a Mission, let us consider a situation as it appeared to a social science consultant for the Mutual Security Agency in an assignment to a Special Technical and Economic Mission (STEM) in southeast Asia. Major project work was being carried on in public health, agriculture, education, and industry. A strong case can be made for the projects under each of the headings -- malaria control, vocational education, rice research, road building -- but the projects have implications and integrative possibilities that go far beyond the realization of specific project objectives. Little is known of levels and standards of living and their differential aspects for residential

and occupational categories; of the different sub-cultural groupings in the country; of the patterns of population mobility; of regional differences in morbidity and mortality; of communication channels, particularly with respect to the acceptance and use of new ideas and innovations; of family and village life and what the natural locality groupings are.

Until these rather basic "documentations" are made of the people, it will be most difficult to design developmental projects which can be expected to meet the precise needs of the country. It was therefore along these lines that discussions were held with STEM project personnel and recommendations made that systematic studies be undertaken. It was apparent however that such broad approaches to a social research program for a STEM operation must be tied to a series of socio-psychological studies to help our people and their counterparts gain insights into the character of the people with whom they are working. It is within this area that one finds a dearth of verified information but an abundance of random opinions on the part of STEM personnel. The result is that the planning of the STEM operation may be based on "hunches" of what the nationals of the country want, need, or aspire to. That these "hunches" may be at variance with reality is suggested from the preliminary findings of work being done in the country under private auspices in the field of cultural anthropology.

Among the questions for which social research could help supply the answers and be of great value to STEM are the following:

a. What is the degree of acceptance and use of new practices, ideas, techniques? This question is of very great importance because much of what we are doing in STEM involves new techniques and practices which we are hopeful are being accepted. We need to know the effective channels of communication. We need to know if local initiative is highly developed or if there is strong dependence on a paternalistic central authority. Such research ought also to reveal the persons or groups who resist change as well as those who encourage it, and ought to identify leaders who could become the strategic individuals about whom local initiative might be developed. Since probably no more than one-half of the adult population are literate, the matter of media of communication is important and reliable information is needed on how knowledge permeates to all levels of the population.

b. What attitudes can be discerned concerning the objectives of STEM especially toward matters directly affecting the economic development of the country? This is a difficult field of investigation but so important that it ought certainly to be attacked. Such very leading questions as -- What do the people think of all and of parts of the STEM program? What do they want from the West and what do they fear from the West? Are some of the things wanted being done now or could they be done with STEM help? Presumably STEM is fairly sure how the people feel on some of these questions but we ought to be quite sure and with particular respect to the depth of the convictions held as well as of indications of change of sentiment and the reasons involved. An additional series of attitude studies should be designed to reveal the feeling at different occupational levels regarding saving and investment of savings in in-

dividual or government enterprises; to disclose the prestige ratings of the various occupations and how these affect the vocational preferences and choices of youth; to uncover the views toward the sizeable Chinese minority who constitute upwards of one-sixth of the population and who because of their concentration in mercantile and commercial enterprise represent a strategic segment of the population in any effort looking toward commercial and industrial development of the country.

This list of research activities for a social scientist is not complete, it could be greatly extended. But perhaps a greater contribution could be made to this discussion by presenting a part of the justification for a selected line of investigation. The reader should keep in mind that STEM personnel are not always familiar with the usefulness of social research so it is necessary to draw up justification statements that to the experienced social scientist may appear elementary. The following is an example of the way the consultant referred to earlier tried to prepare the way for a study of population mobility.

"The fact that large numbers of people are on the move should be of direct significance to the joint program of the Ministries and STEM. Specifically, research in this field should provide program planners who have an eye on productivity with answers to the following logical questions:

> What is the direction of migration, for example, is there a discernible 'flight from the country to the city' of persons in the productive ages? Is it largely the youthful who migrate and if so what job training have they had? What jobs do migrants get when they leave their homes? Are farm villages being left with the least well-educated persons and if so will extension workers have difficulty in finding local leaders to help spearhead agricultural extension programs? Are there more young people being reared in the country than can normally find opportunities there and is the opposite true of city home situations? Does migration of youth leave families 'short-handed' in agriculture, in shops, in home industry?

In reply to all this, the practical administrator may say 'so what'? One answer is to ask questions in return.

> How is industry to make estimates of labor supply and its skills unless even a small start such as this is made? How do you know if migrants to cities add to wage worker ranks, or if they are largely unemployed or under-employed, or if they enter businesses on their own account? How do you know the extent to which the need is being met by offering vocational training in carpentry or commercial work to youth? How do you know but that agricultural officers may be talking about scientific agriculture to an audience large numbers of whom may not remain in agriculture at all?

The ideal situation might be to delay a program of economic development until all the facts are in but if that were done, the STEM program would not yet be started in this country. You have started what appeared ought to be done. If subsequent studies can help keep you on the track, steps should be taken to get them underway."

It is not this writer's view that the social science advisor to a STEM would be expected to undertake all the studies suggested here. Actually, in the STEM visited, there was abundant evidence that STEM personnel and their counterparts were interested in doing systematic research on specific problems growing out of the project operations. Already documents, based on systematic research procedure, have been prepared on land reform, on land development, on internal finance, and on colonization which are most useful reports for current operation of projects and for the planning of future activities. Probably a principal function for the social science advisor in the field of research is the encouragement of short-run evaluative studies within the developmental program as well as the stimulation of long-run research by other groups. In the country visited, for example, at least one of the governmental Ministries has expressed an interest in starting work in social research. Such efforts along with the work in cultural anthropology now in progress, promises to provide some of the basic answers to questions raised in this paper which the social science advisor would probably not have time to develop on his own.

But the social science advisor should be more than a researcher. It would appear that his greatest value to the STEM program and technical assistance officers would lie in his ability to transmit observations on the character of the people and to stimulate new approaches to problems in a continuous search for better ways to make project operations successful. To do this effectively means that the social science advisor should spend much of his time with technical personnel on projects, learn about the country situations at first hand, and interpret, on the basis of his special competence for objective analysis, the relation of the projects to cultural patterns.

The task for the social scientist with a STEM is a difficult one. He may be confronted with a language barrier, with a dearth of data in his field, with few professional associates, and perhaps a lack of confidence that his efforts can lead to useful ends. But these difficulties are neither insurmountable nor are they exclusive to social scientists, program and technical assistance personnel face precisely these same problems to some degree. The Mutual Security Agency has made successful use of workers from many disciplines in carrying on its program. The social sciences should welcome the opportunity to be included.

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A NOTE ON PSYCHO-SOCIAL TENSIONS IN A THAI VILLAGE AFTER THE ADVENT OF OCCIDENTAL TECHNOLOGY

The sequence of technological change, particularly industrialization, has been described in general political, economic and social terms. The effects of these changes on the individual, the cost in anxieties and disappointments or the rewards in release from old bonds and heightened aspiration have received much less attention. In view of the present interest in bringing the advantages of western technology to broader areas of the world, such a demand would seem to invite an increased knowledge of the effects upon the individual, particularly if we would maximize the positive and minimize the negative aspects.

The Problem. This project seeks to describe the social and psychological consequences with particular reference to tensions which attend the acceptance or rejection of proffered technological devices for increasing agricultural production and improving health. The word tension would categorize under one term a variety of social and psychological states which vary beyond a culturally defined "normal" range or beyond a western norm of social and psychological health. They would include by cultural definition delinquencies and psychosis, by definition of health migration from the village and excessive anxiety.

The Setting. This project represents a segment of a larger study which seeks to ascertain over a five-year period the effects on a particular village in Thailand of introducing (or attempting to introduce) certain simple aspects of western technology. The entire project is sponsored by the Southeast Asia Program of Cornell University, and the particular technological devices to be offered will be determined in the light of surveys by specialists of the village agriculture, nutrition and health. The general cultural conditions of the village have already been described by Professor Lauriston Sharp, director of the total project.

Research Design. The theoretical plan of the research may be simply stated. A normal range of tensions will be established for two Thai villages. Subsequently certain technological devices will be proffered to one village but not the other. Significant differences in tensions between the two villages may be considered the results of attempting to introduce or actually introducing technological changes.

Because the social world cannot approximate laboratory conditions, complications necessarily follow. The two villages are not identical. A normal range of tensions cannot be readily established. All other influences in producing change cannot be eliminated. Hence, special criteria must be introduced to establish relations between the tensions and the changes to be introduced, and these will vary with the type of data collected.

Data to be Collected. The data to be collected from the two villages may be divided into three classes: (1) General ethnographic: Here chief emphasis falls on status structure, weltanschauung, life cycle and socialization. Professor Sharp has

already collected some of these materials. (2) Sociological data: On the basis of the ethnographic picture a number of promising indices of social tensions will be established. Among them the following may be useful: demographic material, in- and out-migration, attendance at public festivals, number and cause of arrests by police officers, membership in political or occupational associations, especially cooperatives, quantities of merchandise (and prices) sold in local stores, types and cost of services in the village. (3) Psychological data: In addition to collecting biographical case histories of individuals representative of village social groupings, a variety of tests will seek to locate psychological tensions. One or more of the following tests will be standardized, depending on its adaptability to the circumstances: Rorschach, TAT, Wartegg, HTP, Hellersberg, Thurstone perceptual. Other indices may be developed on the spot using dreams, posture, gesture or school compositions. Once a knowledge of the cultural norms has been established, case studies of deviants will be undertaken in order further to document the cultural tensions.

Treatment of Data. The study demands establishing a set of meaningful relations between the quantitative or qualitative indices of tension and the proffered technologies and their concomitants. These tensions will both precede and succeed the experimental factors at varying intervals. Empirical treatment of the various indices (frequency differences between the villages, intercorrelations between the social and psychological indices, plotting dependent variables against indices of the experimental variables, etc.) presents no great problem. The crux of the matter consists in the establishment of types of qualitative relationship between the tensions and the proffered technologies. Among the classes of these relationships, the following may be anticipated: (1) Phenomenal, where a person perceives a clear relationship between the induced changes and a given event, e.g., a woman observes, "Since we have been getting more rice and making more money, my husband seems to spend more time in the tea houses." (2) Socio-functional, where two events may be understood as related by assuming their connection in serving a social "need" or in preserving society, e.g., members of an older generation express annoyance with younger people for their disregard of certain traditional practices. If at the same time the younger generation shows an increase in western-type values, we may perceive the two events as socio-functionally related. Traditional practices, we assume, no longer satisfy the changed "needs" of the younger generation. (3) Psychodynamic, where an established psychological mechanism furnishes the relationship principle, e.g., projective tests may indicate increasing diffuse hostilities over a period of years, particularly on the part of the younger generation. If certain ceremonies formerly served to release hostility, if the younger generation as a result of changed values, no longer participates in these ceremonies, and if in addition no alternative mode of release has been discovered, we may infer mounting inner tensions as a result of a blocked avenue of discharge. Additional and more specific types of relationship between events may be anticipated.

Significance of Results. Though this study serves primarily the practical end of charting the tensions in technological change, comparison with other detailed studies of culture contact will help reveal more precisely the conditions for acceptance or rejection of a culture element or complex. For example, the thesis could be checked with the aid of psychological

materials whether a direction of culture change may be found covertly in the culture prior to change. Psychologically these materials can contribute significantly to the study of mental health and symptom formation in non-western culture. For example, Thai culture appears theoretically interesting because of its suppression of direct release of hostility. If neurotic symptoms develop in our culture from the inhibition of these impulses and the concomitant anxieties, what are the consequences in Thailand? If neuroses are avoided, what circumstances contribute to this result?

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THE PROCESS OF ECONOMIC GROWTH

A convergence of interest from many sides has led to a greatly accelerated emphasis in recent years on a long neglected field of economic thought -- the theory of economic development. Economic historians seeking a conceptual web upon which to hang their analyses of the past, economists in government concerned with the problem of fostering economic growth, those confronted with postwar balance of payments problems associated with the chronic "dollar shortage," and those interested in the particular aspects of business cycle and capital theory evolved by Harrod and Domar have all in their own way devoted increasing attention to the long-run problems of economic change. Nevertheless, Professor Rostow's work* constitutes the first full-scale return to this foregotten side of Adam Smith. The book presents the gleanings from Professor Rostow's graduate seminar in economic history at Massachusetts Institute of Technology. It attempts to explain the process of economic growth by linking economics to the other social sciences through the introduction of six propensities which summarize the response of society to the stimulus of economic motives.

The rate of growth of an economy in Rostow's system is determined by changes in "two enormously complex variables," the size and productivity of the working force and of the stock of capital; the latter is defined so as to include natural resources and scientific, technical, and organizational knowledge. The size and productivity of the working force in turn are dependent upon the birth rate, the death rate, the role of women and children in the working force, the skill of the working force, and the degree of effort it puts forth. Similarly, the major subvariables determining changes in the size and productivity of the capital stock are the yield from additions to it, the volume of resources devoted to the pursuit of fundamental and applied science, the proportion of the flow of potential innovations accepted, the volume of resources allocated to current investment, and the appropriateness of the desired level of consumption in relation to the level of investment. Values for these variables and subvariables result from the interplay of economic yields and the underlying social propensities. The six propensities which, operating through the institutional framework, are deemed fundamental to economic growth by Professor Rostow consist of the propensity to develop fundamental science, to apply science to economic ends, to accept innovations, to seek material advance, to consume, and to have children.

Unlike Harrod's analysis which treats population change and the flow of innovations as given and also unlike those systems which consider autonomous investment as the key to economic change, Professor Rostow includes the entire process of innovation and the growth of population as integral parts of his analysis. He views innovations as one form of investment in response to economic incentives, with the form of investment depending on the pressure of growth against available resources. Moreover, he is somewhat critical of contemporary usage of the

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*W. W. Rostow, The Process of Economic Growth, New York: W. W. Norton and Company, 1952. Pp. 285. $4.50.

accelerator, relating investment to the rate of increase of income, and prefers to regard the rate of growth of real income as a function of the growth and nature of the labor force and the stock of capital.

In a chapter on business cycles and economic growth, Professor Rostow echoes the current dissatisfaction among economists with the over-aggregated character of the simple Keynesian models. Accordingly, his cyclical hypothesis is distinguished from those now extant by the place given to the excessive concentration of investment in certain sectors of the economy. When carried too far during boom periods, this overinvestment in particular industries becomes apparent and leads to a downturn in general business activity. The key to the cycle is found in the lags involved in the investment process and its institutional setting. The direction of investment made by private individuals is apt to be influenced unduly by current profit rates and the follow-the-leader tendency. Accompanied by a lag between the investment decision and the time when the increase in capacity is achieved, these factors may bring about a distortion in the industrial composition of investment. Implied in the rejection of the accelerator, this analysis involves the denial of the widely held distinction between autonomous and induced investment. In the absence of lapses from full employment, Professor Rostow envisages that a higher rate of long-term growth is possible.

A greater degree of originality is apparent in the outstanding analysis presented of growth and secular trends. Trend periods in prices, income distribution, and investment yields are accounted for by prolonged over-shooting of expansion in certain directions. The overshooting results from the distortion associated with wars and from investment characterized by extremely long gestation periods, in particular the investment involved in opening new agricultural areas and new sources of raw materials. Since the closing years of the eighteenth century, the expansion periods are identified as follows: from 1793 to 1815, associated with the stimulus to agriculture and shipping caused by the Napoleonic wars; from 1848 to 1873, characterized by the settlement of the American West and Australia; from 1896 to 1920, which included the unusual demands for the development of Argentina and Canada and also World War I; and the period since 1935, which has again resulted in a shift of relative prices in favor of agriculture and raw materials. The intervening periods were devoted chiefly to advance in other sectors of the economy, while the real wages of industrial workers rose and growth caught up with the overexpanded primary industries. This explanation of trend periods provides a mechanism for accommodating the long-period movements of Kondratieff and differs from that of Schumpeter in the lesser role played by the development of new industries and innovations.

Many observations and applications accompany the exposition, although the major part of the work is concerned with an elaboration of the hypothesis. One of the most interesting of these is the discussion of the take-off of predominantly agricultural economies into industrialization. For example, Australia and New Zealand received their impetus to industrial growth from increases in the value of the raw materials and foodstuffs they produced, which had formative repercussions on the industrial segments of their economies. On the other hand, the industrial take-off of Japan is attributed to a shift in the underlying

propensities accompanying the change in political administration with the beginning of the Meiji Era in 1868. At another point after considering the relationship between war and economic change in Britain since the thirteenth century, Professor Rostow concludes that the destructive effects of warfare have more than offset the direct gains involved, but that the political and social effects of war have been conducive to economic growth. Despite the pertinence and poignancy of observations of this type, the latter part of the book, which is devoted to some applications, falls short of presenting a demonstration of the practical working of the theoretical system evolved in the earlier chapters. Two chapters on the terms of trade in theory and practice and one on economic theory and public policy demonstrate better the need for developing long-run (as opposed to short-run) theories than they do the theory of growth embodied in the earlier chapters. Interesting and valuable though it is, the connection between the discussion of war and economic growth and the apparatus presented in the early part of the book is tenuous.

Professor Rostow's system effectively takes account of the part played by population and working force changes, the process of capital formation, and the development of science and technology in economic expansion. Some questions may be raised, however, with respect to how well it will accommodate certain institutional and environmental aspects of the problem, such as the need for stable government and a banking system, the absence of inhibiting religious dogmas, the occurrence of essential natural resources, and access to large and growing markets. Governmental order in many respects may be viewed as a precondition for economic growth. The sacred cow of Hinduism and the failure of John Law's bank appear to be quirks rather than expressions of underlying propensities, yet they have had important effects on economic development in India and France. Similarly, the development and existence of large free trade territories for marketing the manufactures of Great Britain and the northeastern part of the United States were essential to their rapid industrial growth. Professor Rostow's theory is sufficiently ubiquitous that these influences undoubtedly find a place somewhere, the question is how well they fit.

The most novel aspect of the system is the connecting links to the total social and cultural environment provided through the six basic propensities. The individual treatment accorded the propensities to develop fundamental science, to apply science to economic ends, and to accept innovations appears odd at first sight. Perhaps the author's present university environment led him to deal with them separately. At any rate, he hastens to explain that in a more generalized system they could be regarded as sectoral aspects of the propensity to seek material advance, thus reducing the ties to the social and political environment to three basic propensities -- to seek material advance, to consume, and to have children. The significance of the more detailed structure is conceded, but the question may be raised as to whether or not other breakdowns might not be equally rewarding. With regard to all of the propensities, one does not need to be a skeptic to have less confidence than Professor Rostow expresses in their measurability or predictability.

The theoretical mechanism is presented as a provisional and preliminary one. Even so, it is extremely suggestive and consti-

tutes an important contribution to economic and social thought. An adequate appraisal of the system must await its application and subsequent development. To this task Professor Rostow addresses himself in the future. If this book is any indication of the quality of what is to come, economists, historians, and social scientists in general can look forward with confident anticipation.

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